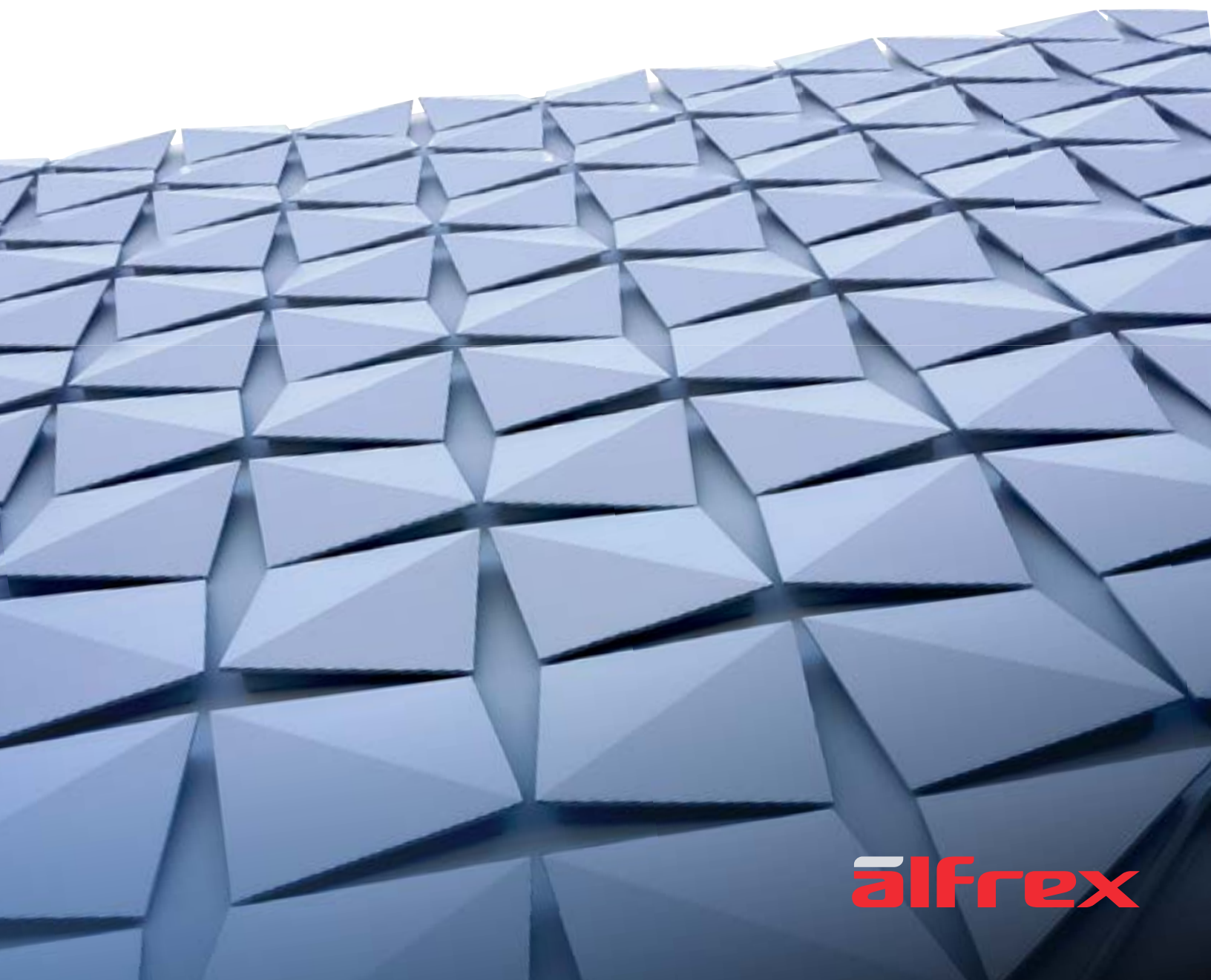


# Alfred FR

*Metal Composite Material*

Digital Architectural Binder



**alfrex**

# ALFLEX OVERVIEW

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Alflex, Inc. is specialized in fire-resistant and non-combustible architectural metal wall cladding for the North American market. Its foundation as a manufacturer dates back to 2000 for fire-resistant compounds, coatings, and bonding materials; and back to 2008 as a global manufacturer of fire-resistant MCM. Its company history and highlights include:

- 2000** Parent company Unience, Ltd. founded manufacturing fire-resistant compounds
- 2008** Alflex FR Metal Composite Material launched with 2 manufacturing lines
- 2016** Alflex USA commercial offices opened
- 2017** Alflex Canada commercial offices opened
- 2019** Alflex Plate - coil coated architectural aluminum plate added to portfolio
- 2020** New FR-core only MCM manufacturing plant and global headquarters inaugurated in Buford, Georgia USA
- 2020** All required product testing and certifications for the USA and Canada completed for Alflex FR MCM and Alflex Plate

## PRODUCTS

Alflex FR MCM - Metal Composite Material Wall Panels

Alflex Plate Pre-Finished Architectural Wall Panels

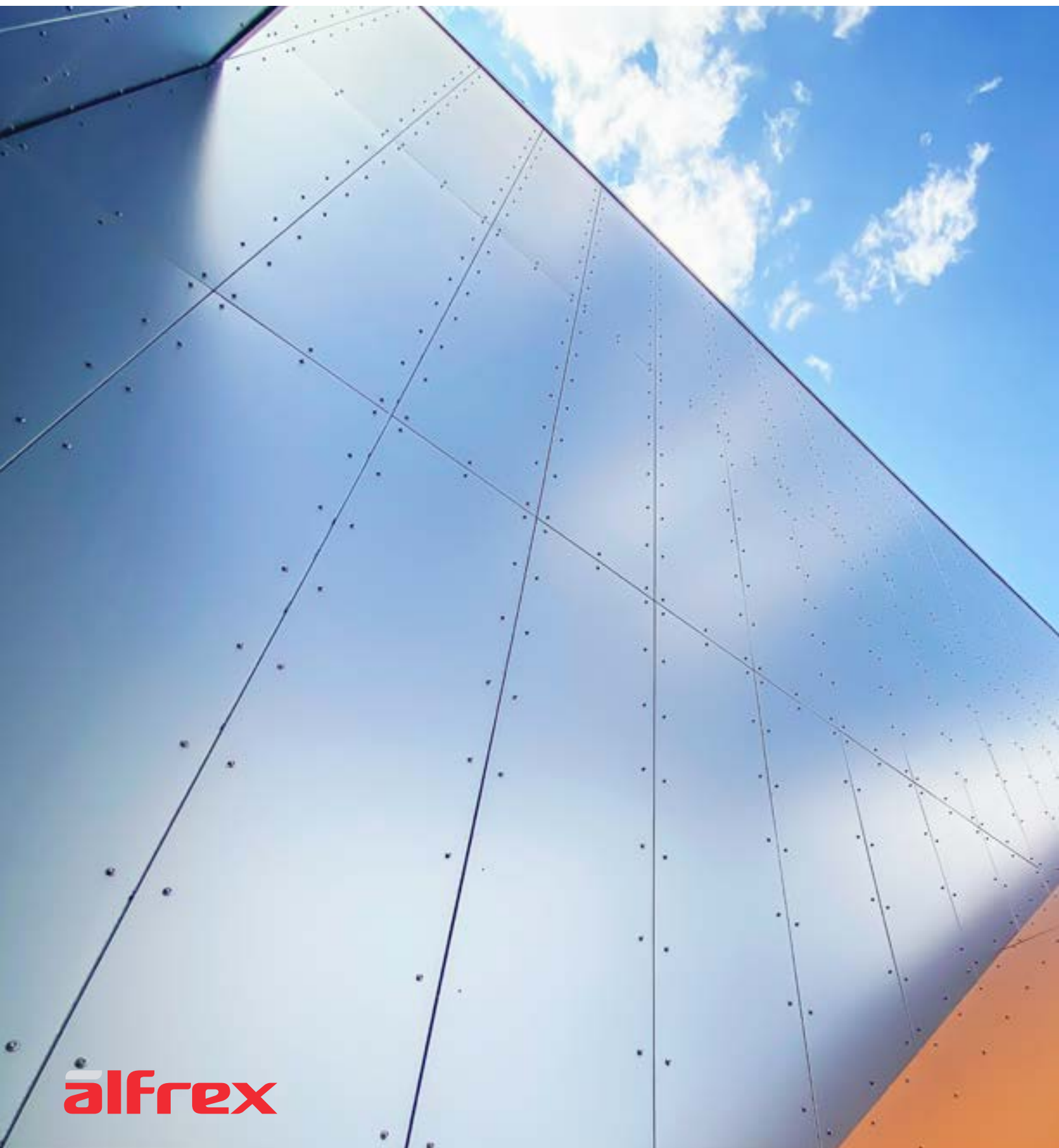
Matching Flat Sheet and Trim Profiles





**alfrex**





**alfrex**

# PRODUCT OVERVIEW

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## **Alfred FR MCM** *Metal Composite Material Wall Panels*

Alfred FR is a continuous process manufactured metal composite material (MCM) consisting of an extruded fire-resistant core permanently bonded to pre-finished aluminum skins on each side. It is fully tested and compliant with building codes in both the USA and Canada - holding key certifications such as ICC ES Evaluation Report ESR-4566, ICC AC208, NFPA 285, CAN S134, Florida Product Approval for High Velocity Hurricane Zones, and many others.

## **Alfred Plate** *Pre-Finished Architectural Wall Panels*

Alfred Plate is a 100% solid aluminum, non-combustible wall cladding panel with a standard nominal thickness of 0.125" (3mm) by a maximum 62" width - allowing it to be fabricated and installed with the same methods and system assemblies utilized with MCM. Like MCM, it is pre-finished via coil coating lines - providing better color consistency and economics versus the post-painting of individual plate panels.

## **Matching Flat Sheet and Trim Profiles**

Alfred stocks tension leveled 0.040" (1mm) aluminum flat sheet in all MCM standard colors to address the challenge of coordinating color match between metal wall cladding products and sheet metal for trim and accessories.

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# ALFRED FR PRODUCT GUIDE

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# INTRODUCTION

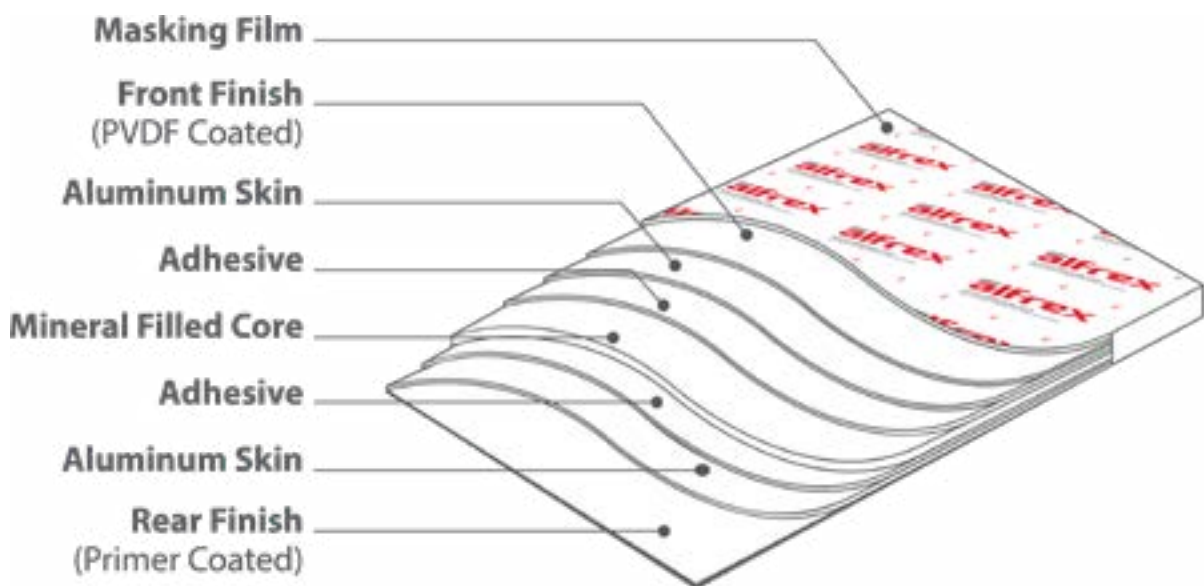
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**ALFREX FR** is a continuous process manufactured aluminum composite material (ACM) consisting of an extruded fire-resistant core permanently bonded to pre-finished aluminum skins on each side. It is extremely lightweight and exceptionally flat, yet easy to fabricate into any shape.

**Alfred FR** is coil coated utilizing 70% PVDF Kynar resin and other high-quality paint finishes - providing color uniformity, an extensive range of colors, unique coating patterns and textures, and the confidence of industry standard performance warranties. Its properties make **Alfred FR** an ideal choice for most any architectural design intent imaginable.

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## ALFREX FR COMPOSITION



# FEATURES

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## Non-Combustibility

Alfred Plate is non-combustible 100% solid aluminum, 3003-H16 alloy. For applications where meeting local building codes or satisfying owner preference is mandated, a non-combustible metal wall cladding option may be desired. Alfred Plate fits this requirement and much more.



## Coil Coated Aluminum Plate

Architectural quality coil coated finishes are rarely available on plate thickness greater than 0.080". With Alfred 3mm Plate, "Coil Coated" is the standard. Projects requiring a non-combustible solution with greater panel spans can count on Alfred 3mm Plate, coil coated with the same wide range of finishes and exterior coating performance warranties as Alfred FR MCM.



## Custom Colors

Alfred provides custom matching to transform your imagination into reality using the color or finish of your choice. Simply send us a color sample, coating manufacturer paint code, Pantone number, or PMS number and we will quickly turn around an accurate match that meets your project requirements.



## Small Lot Custom Colors

Alfred stocks 3mm thick aluminum plate in 62" wide x 165" and 196" long sheets with a primed back side. This enables the post-painting of sheets in either air dry or baked on spray finishes, eliminating the need for customers to source sheets from multiple sources. This capability also provides a more economical solution for small, custom color requirements where coil coating minimums cannot be met.



## Cut to Length for the Project

Alfred Plate is tension leveled and cut to length per the requirements of each individual project. With a minimum quantity of 20 sheets per length, customers can take off and optimize Alfred Plate in the same manner as Alfred FR MCM - reducing scrap and processing costs.



## Compatibility and Formability

Alfred Plate can be fabricated using proven methods such as: cutting, routing, shearing, bending, folding, and roll forming. It can be folded to a 2T bend naturally, and to 90 degrees when routed from the back side. This enables closer compatibility between Alfred Plate and popular MCM installation systems with only slight modifications.

# REFERENCE DATA

## STANDARD SIZES

| PROPERTY   | 4mm FR |       | UNITS |
|--|--------|-------|-------|
| Panel Thickness  | 0.157  |       | in    |
|  | 4.0    |       | mm    |
| Top & Backer Skin Thickness ( <i>nominal</i> )                               | 0.020  |       | in    |
|  | 0.5    |       | mm    |
| Standard Widths  | 50     | 62    | in    |
|  | 1,270  | 1,575 | mm    |
| Other Available Widths<br><small>*Widths only available upon request</small> | 40     | 49.2  | in    |
|  | 1,020  | 1,250 | mm    |

## TOLERANCES

| PROPERTY   | 4mm FR      |  | UNITS |
|------------|-------------|--|-------|
| Width      | + / - 0.080 |  | in    |
|            | 2.0         |  | mm    |
| Length     | + / - 0.157 |  | in    |
|            | 4.0         |  | mm    |
| Thickness  | + / - 0.008 |  | in    |
|            | 0.2         |  | mm    |
| Squareness | + / - 0.157 |  | in    |
|            | 4           |  | mm    |

## TECHNICAL PROPERTIES

| PROPERTY   | STANDARD  | 4mm FR                  |  | UNITS                 |
|--|-----------|-------------------------|--|-----------------------|
| Panel Weight                                       | -         | 1.51                    |  | lb/ft <sup>2</sup>    |
|  |           | 7.37                    |  | kg/m <sup>2</sup>     |
| Flexural Modulus<br>( <i>Flexural Elasticity</i> ) | ASTM C393 | 5.38 x 10 <sup>6</sup>  |  | Psi                   |
|  |           | 3.79 x 10 <sup>3</sup>  |  | Mpa                   |
| Modulus of Elasticity                              | ASTM E8   | 2.46 x 10 <sup>6</sup>  |  | Psi                   |
|  |           | 17.00 x 10 <sup>3</sup> |  | Mpa                   |
| Tensile Strength                                   | ASTM E8   | 6.96 x 10 <sup>3</sup>  |  | Psi                   |
|  |           | 48                      |  | Mpa                   |
| Yield Strength                                     | ASTM E8   | 6.23 x 10 <sup>3</sup>  |  | Psi                   |
|  |           | 43                      |  | Mpa                   |
| Elongation   | ASTM E8   | 5                       |  | %                     |
| Moment of Inertia                                  | -         | 1.90 x 10 <sup>-4</sup> |  | in <sup>4</sup> /in   |
|  |           | 1.36 x 10 <sup>-3</sup> |  | cm <sup>4</sup> /m    |
| Section Modulus                                    | -         | 1.81 x 10 <sup>-3</sup> |  | in <sup>3</sup> /in   |
|  |           | 6.77 x 10 <sup>-3</sup> |  | cm <sup>3</sup> /m    |
| Coefficient of Expansion                           | ASTM D696 | 1.44 x 10 <sup>-5</sup> |  | in/in/°F (@ -22-86°F) |

# REFERENCE DATA

## BUILDING CODES

|                                  |  |   |
|----------------------------------|--|---|
| ICC AC-25                        | Certificate WHI18-26206601 (Spec ID 36858) |   |
| ICC-ESR Evaluation Report        | ESR-4566                                   |   |
| ICC-ESR Supplements [California] | CBC  | California Building Code                        |
|                                  | DSA  | Division of the State Architect                 |
|                                  | OSHPD                                      | Office of Statewide Health Planning Development |
|                                  | LABC                                       | Los Angeles Building Code                       |
| Los Angeles Research Report      | Per IB119 exempt with ICC ESR              |   |
| Florida Product Approval         | FL I5337 (R2, R3, R4, R5)                  |   |

## FIRE PERFORMANCE

|              |                       |
|--------------|-----------------------|
| ASTM E84     | Class A               |
| ASTM E119    | Fire Rating - 2 hours |
| NFPA 285     | Passed                |
| CAN/ULC S102 | Class A               |
| CAN/ULC S134 | Passed                |
| ASTM D635    | Classified CC1        |

# ALFRED FR MCM EXECUTIVE SUMMARY

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# ALFLEX FR MCM EXECUTIVE SUMMARY

4mm Aluminum Composite Material



Fire Resistant & Non-Combustible Cladding

## ALFLEX 4mm FR MCM

- » Fire Resistant Core Only - No PE
- » In-house produced FR core
- » Minimal price difference between solids, micas and metallics
- » Thickness: Standard 4mm  
[Available in 3mm and 6mm]
- » Width: Standard 62in  
50in in select colors  
40.2in and 49.2in also available
- » 10 Year Bond Integrity Warranty
- » 10, 20 & 30 Year Finish Warranties
- » 48 Stocking Items in Finished Goods

### MATCHING FLAT SHEET

- » Sheet Size: 0.040in x 48in x 120in
- » 46 standard matching colors in stock
- » Perfect for trim and accessories
- » Same paint finishes as Alflex FR

### FINISHED GOODS

- » Stocking Locations: Atlanta and Toronto
- » FR MCM: 46 standard colors - 4mm x 62in x 196in lengths
- » Matching Flat Sheet: 40 colors - 0.040in x 48in x 120in
- » 3mm Plate: 62in x 165in and 196in in 5 standard colors

### CUSTOM COLORS

- » Minimum 1,000 sqft production quantity
- » No Setup Charges
- » Require color sample, paint code, PMS or Pantone number
- » Custom Matching Flat Sheet Available - 1,000 sqft minimum

### MATCHING TRIM PROFILES

- » All standard colors stocked on the floor in MCM and Flat Sheet
- » 2-3 day lead times for standard color orders from inventory
- » 2-3 week lead times for standard color production orders
- » Proactive communication and stewardship of orders
- » Parapet Flashing, Z-Flashing

### STANDARD COLORS

Matching 0.040" Flat Sheet in Inventory

#### ALFLEX FR MCM

##### » 2-Coat Solids:



##### » Vivid Solids



##### » 2-Coat Micas:



##### » 3-Coat Metallics:



##### » Wood Series:



##### » Metal Series:



##### » Specialty Series:



##### » Natural Zinc Series:



\* Hover over finishes for Finish Name.\*

### PRODUCT CERTIFICATIONS

#### ALFLEX FR MCM - BUILDING CODES

|                                  |  |   |
|----------------------------------|--|---|
| ICC AC-25                        | Certificate WHI22-3295810I (Spec ID 36858) |   |
| ICC-ESR Evaluation Report        | ESR-4566                                   |   |
| ICC-ESR Supplements [California] | CBC  | California Building Code                        |
|                                  | DSA  | Division of the State Architect                 |
|                                  | OSHPD                                      | Office of Statewide Health Planning Development |
|                                  | LABC                                       | Los Angeles Building Code                       |
| Los Angeles Research Report      | Per IB119 exempt with ICC ESR              |   |
| Florida Product Approval         | FL I5337 (R2, R3, R4, R5)                  |   |

#### ALFLEX FR MCM - FIRE PERFORMANCE

|           |              |
|-----------|--------------|
| ASTM E84  | CAN/ULC S102 |
| ASTM E119 | CAN/ULC S134 |
| NFPA 285  | ASTM D635    |

#### LEED CERTIFICATION RECYCLED CONTENT MR CREDIT 4 - 26.07%

- » LEED v3 : 2 Points
- » LEED v4 : 1 Point

### USA MANUFACTURING PLANT

- » 100,000 sqft facility in Buford, Georgia USA
- » MCM Production Line:
  - › Painted coil stocked in all standard colors for quick production
  - › Custom sheet lengths up to 300" (25ft)
  - › BABA "Build America - Buy American" compliant upon request
  - › Comprehensive process scrap recycling program



# ALFRED FR MCM SPECIFICATION COMPLIANCE CHECKLIST

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SPECIFICATION COMPLIANCE CHECKLIST

Section 07 42 13 - Metal Composite Wall Panels



Fire Resistant & Non-Combustible Cladding

PART 1: GENERAL

ASTM E330 Structural Performance

Perimeter Framing Deflection ≤ L/175  
Panel Deflection ≤ L/60

Panel Deflection - Compliant  
± 75 psf, 20.0 psf water penetration per ASTM E330

|                 |             | Deflection (in) |                             | Permanent Set (in) |                             |
|-----------------|-------------|-----------------|-----------------------------|--------------------|-----------------------------|
|                 |             | Measured        | Allowed Per TAS 202 (L/250) | Measured           | Allowed Per TAS 202 (L/720) |
| Design Pressure | + 75.0/psf  | 0.15            | 0.48                        | 0.01               | 0.17                        |
|                 | - 75.0/psf  | 0.10            | 0.48                        | < 0.01             | 0.17                        |
| Test Pressure   | + 112.5/psf | 0.23            | 0.48                        | 0.17               | 0.17                        |
|                 | - 112.5/psf | 0.17            | 0.48                        | 0.02               | 0.17                        |

Perimeter Framing Deflection - Compliant

|                 |             | Deflection (in) |                              | Permanent Set (in) |                              |
|-----------------|-------------|-----------------|------------------------------|--------------------|------------------------------|
|                 |             | Measured        | Allowed Per TAS 202 (L/1333) | Measured           | Allowed Per TAS 202 (L/3899) |
| Design Pressure | + 75.0/psf  | 0.01            | 0.09                         | 0.01               | 0.03                         |
|                 | - 75.0/psf  | 0.02            | 0.09                         | < 0.01             | 0.03                         |
| Test Pressure   | + 112.5/psf | 0.01            | N/A                          | < 0.01             | 0.03                         |
|                 | - 112.5/psf | 0.12            | N/A                          | < 0.01             | 0.03                         |

Quality Assurance

Product Certifications & Test Report Compliance

|   |                      |
|---|----------------------|
| ICC-ESR Certification Report (ESR-4566)       | <a href="#">View</a> |
| ICC-AC 25 Certification of Compliance Listing | <a href="#">View</a> |
| ICC Supplements California                    | CBC                  |
|   | DSA                  |
|   | OSHPD                |
|   | LABC                 |
| Florida Product Approval HVHZ                 | FL 33597             |
|   | FL I6406-R5          |

MCM Manufacturer Qualifications

|   |
|---|
| 17 Years Manufacturing Experience                             |
| Produces FR core material in-house                            |
| Intertek - Product Testing, Certification, Listing Compliance |
| Project References  |

[View](#)

ASTM E283, Air Leakage

< 0.06 cfm per sf at 1.57psf

|   |           |
|---|-----------|
| 0.02 cfm/ft² (0.10 L/s/m²) at 1.57 psf (25 mph) | Compliant |
| 0.04 cfm/ft² (0.20 L/s/m²) at 6.27 psf (50 mph) | Compliant |

ASTM E331, Water Penetration

No water infiltration at 6.24 psf (0.299 kPa)

|  |           |
|--|-----------|
| No water infiltration at 20 psf (0.96 kPa) | Compliant |
|--|-----------|

Fire Performance

Compliant with regulatory fire code testing

NFPA 285, ASTM E84, ASTM E119, ASTM E108, ASTM D1929,  
CAN/ULC S102, CAN/ULC S134, ASTM D635

\*\* See page 2 for result summaries for each test.

Warranty

|                               |          |         |
|-------------------------------|----------|---------|
| Bond Integrity Bond Integrity | 10 Years | Product |
| Hairline Aluminum             | 10 Years | Finish  |
| 2 Coat Solid / 2 Coat Mica    | 30 Years | Finish  |
| Vivid Solid                   | 20 Years | Finish  |
| 3 Coat Metallic               | 30 Years | Finish  |
| Wood and Metal Series         | 20 Years | Finish  |

PART 2: PRODUCT

MCM Material

Two sheets of aluminum sandwiching a solid core of extruded thermoplastic fire-resistant solid material formed in a continuous process with no glues or liquid adhesives between dissimilar materials.

MCM Face Sheets

|                |                                |
|----------------|--------------------------------|
| Aluminum Alloy | 3003-H16                       |
| Thickness      | 0.5mm (0.020") nominal of each |

SPECIFICATION COMPLIANCE CHECKLIST

Section 07 42 13 - Metal Composite Wall Panels



Fire Resistant & Non-Combustible Cladding

PART 2: PRODUCT (con't)

MCM Panel Dimensions

|           |                                  |
|-----------|----------------------------------|
| Thickness | 4mm (0.157 in) & 6mm (0.236 in)  |
| Widths    | 40", 50", 62"                    |
| Lengths   | Made to order 48" min - 300" max |

MCM Fire Resistant Core

|                              |              |
|------------------------------|--------------|
| Fire Resistant Mineral Core: |              |
| 3.0 mm (0.117 in) nominal    | 4mm FR panel |
| 5.0 mm (0.197 in) nominal    | 6mm FR panel |

Finishes

AAMA 2605 Compliant Coil Coated  
70% KYNAR® 500 based Polyvinylidene Fluoride (PVDF) finishes

| PROPERTY   | STANDARD     | COIL COATED ALUMINUM                                     |
|--|--------------|--|
| Color Uniformity                                   | ASTM D2244   | Max. 2 Delta E   |
| Color Retention - Fade                             | ASTM D2244   | ≤ 5 Delta E units  |
| Chalk Rating                                       | ASTM D4214   | ≤ 8 units  |
| Specular Gloss                                     | ASTM D523    | ± 5 units  |
| Dry Film Hardness                                  | ASTM D3363   | F - 2H   |
| Dry Adhesion                                       | ASTM D3359   | No coating removal                                       |
| Abrasion Resistance                                | ASTM D968    | Abrasion Coefficient Value ≥ 40                          |
| Reverse Impact                                     | ASTM D2794   | No coating removal                                       |
| Muriatic Acid Resistance (10% HCl, 15 min)         | ASTM D1308   | No blistering or visual change                           |
| Nitric Acid Resistance (HNO <sub>3</sub> , 30 min) | ASTM D1308   | ≤ 5 Delta E  |
| Alkali Mortar Resistance (10%, 25% NaOH, 60 min)   | ASTM D1308   | No removal<br>No loss of adhesion or visual change       |
| Flexibility  | ASTM D4145   | 2T - no pick off   |
| Humidity Resistance                                | ASTM D714    | 4000 hour exposure                                       |
|  | ASTM D2247   | Less than "few" blisters Size No. 8                      |
| Cyclic Corrosion                                   | ASTM B117    | 2000 hour exposure<br>Min rating of 7 scribe or cut edge |
|  | AAMA 2605-13 | Min. blister rating of 8                                 |

Bond Integrity

No failure of bonding when tested to ASTM D1781

ICC-AC 25 ASTM D1781 Intertek Report No. J6080.01-106-16 R0

| Condition     | Peel Torque (in•lb/in) |          | Result |
|---------------|------------------------|----------|--------|
|               | Average                | Required |        |
| Control       | 39.91                  | 22.5     | Pass   |
| 8 Hour Boil   | 48.71                  | 22.5     | Pass   |
| 21 Day Water  | 40.31                  | 22.5     | Pass   |
| Freeze - Thaw | 42.21                  | 22.5     | Pass   |

Fire Performance

| Intertek Certified Test                            | Results   |
|--|---|
| NFPA 285 Multi-Story Fire Test                     | Passed  |
| ASTM E84: Flame spread <25<br>Smoke Developed <450 | Class A<br>Flame Spread: 0<br>Smoke Developed: 0    |
| CAN/ULC S102                                       | Class A<br>Flame Spread: 0<br>Smoke Developed: 0    |
| CAN/ULC S134                                       | Passed  |
| ASTM E119  | Passed - 2 Hour rating                              |
| ASTM E108 Surface Flammability                     | Passed  |
| ASTM D1929 Ignition Temperature                    | Flash: 716 °F (380 °C)<br>Ignition: 752 °F (400 °C) |
| ASTM D635 Rate of Burning                          | Classified CC1                                      |

Technical Properties Data Sheet

|                   |                      |
|-------------------|----------------------|
| Alfred MCM 4mm FR | <a href="#">View</a> |
| Alfred MCM 6mm FR | <a href="#">View</a> |

Related Materials

Matching trim and accessories formed from sheet metal to match MCM panel finish.

Alfred stocks 0.040" x 48" x 120" flat sheet in 40 colors that match Alfred FR MCM standard colors.

# ALFRED FR MCM COMPETITIVE COMPARISON CHART

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# EXPANDED COMPETITIVE COMPARISON CHART

MCM Competitor Technical Data Comparison



Fire Resistant & Non-Combustible Cladding

|                        | Company<br>MCM Brand   | Alfred, Inc<br>Alfred FR | Arconic<br>Reynobond FR | Mitsubishi Chemical<br>Alpolic fr | Company A<br>Brand A |
|------------------------|--|--------------------------|-------------------------|-----------------------------------|----------------------|
| GENERAL COMPARISON     | Product<br>4mm FR Aluminum Composite Material (ACM/MCM)                                    | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | ACM Manufacturing Experience<br>15+ Years  | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | ACM Manufacturing Process<br>Continuous Process Manufactured with No Glues or<br>Adhesives | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | Fire Resistant Mineral Filled Core   | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | FR Core Manufactured In-House  | ✓                        |                         | ✓                                 | ✓                    |
|                        | USA Manufacturing Plant Location   | Buford, GA               | Eastman, GA             | Chesapeake, VA                    | Benton, KY           |
|                        | Product Bond Integrity Warranty  | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | Metal Composite Manufacturer Alliance Member   | ✓                        | ✓                       |                                   | ✓                    |
| PRODUCT CERTIFICATIONS | 3rd Party Certifying Agencies<br>Intertek / International Code Council, Inc. (ICC)         | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | ICC-ESR Certification Report   | ESR-4566                 | ESR-3435                | ESR-2653                          | ESR-1185             |
|                        | ICC-AC 25 Certification for ACM / MCM  | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | Fire Performance Certification USA<br>NFPA 285, ASTM E84, ASTM E119                        | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | Fire Performance Certification Canada<br>CAN / ULC S102, S134                              | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | ICC Supplement CBC<br>California Building Code   | ✓                        |                         | ✓                                 |                      |
|                        | ICC Supplement DSA<br>Division of the State Architect - California                         | ✓                        |                         |                                   |                      |
|                        | ICC Supplement OSHPD<br>Office of Statewide Health Planning<br>Development - California    | ✓                        |                         |                                   |                      |
|                        | ICC Supplement LABC<br>Los Angeles Building Code - California                              | ✓                        | ✓                       | ✓                                 |                      |
|                        | Los Angeles Research Report<br>Per IB119 exempt with ICC ESR                               | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | Florida State Product Approval   | ✓                        | ✓                       | ✓                                 | ✓                    |
|                        | High Velocity Hurricane Zone   | ✓                        | ✓                       | ✓                                 | ✓                    |

# EXPANDED COMPETITIVE COMPARISON CHART



MCM Competitor Technical Data Comparison

Fire Resistant & Non-Combustible Cladding

|   | Company<br>MCM Brand   | Alfred, Inc<br>Alfred FR           | Arconic<br>Reynobond FR | Mitsubishi Chemical<br>Alpolic fr | Company A<br>Brand A |
|---|--|------------------------------------|-------------------------|-----------------------------------|----------------------|
| FIRE PERFORMANCE                            | ASTM E84<br>Class A  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | NFPA 285<br>Passed   | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | CAN/ULC S102<br>Class A  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | CAN/ULC S134<br>Passed   | ✓                                  | ✓                       | ✓                                 | ✓                    |
| ARCHITECTURAL PAINT SYSTEMS                 | Primary System   | 70% Kynar PVDF                     | 70% Kynar PVDF          | Lumiflon                          | 70% Kynar PVDF       |
|   | Secondary System   | Lumiflon                           | Lumiflon                | 70% Kynar PVDF                    | Lumiflon             |
|   | Primary Paint Suppliers  | PPG<br>Beckers<br>Sherwin Williams | PPG<br>Beckers          | Sherwin-Williams<br>PPG           | PPG<br>Akzo Noble    |
|   | AAMA 2605 Compliant  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | 30 Year Finish Performance Warranty  | ✓                                  | ✓                       | ✓                                 | ✓                    |
| ARCHITECTURAL PRODUCT OFFERING AND SERVICES | Standard Widths (62" / 50")  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Other Widths (49.2" / 40")   | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Custom Lengths :<br>Panels are Cut to Length during Manufacturing  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Standard Colors : 30+<br>Solid, Mica, 3-coat Metallic, Wood Grain,<br>Brushed Metal, Natural Metals, Corten Rust | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Custom Colors  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Finished Goods ACM Panels  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Company Finished Goods Locations   | USA & Canada                       | USA only                | USA only                          | USA only             |
|   | Matching Flat Sheet  | ✓                                  | ✓                       | ✓                                 | ✓                    |
|   | Matching Flat Sheet Thickness  | 0.040"                             | 0.040"                  | 0.032"                            | 0.040"               |



EXPANDED COMPETITIVE COMPARISON CHART

MCM Competitor Technical Data Comparison



Fire Resistant & Non-Combustible Cladding

TECHNICAL DATA COMPARISON

| Company<br>MCM Brand   | Alfred, Inc<br>Alfred FR | Arconic<br>Reynobond FR | Mitsubishi Chemical<br>Alpolic fr | Company A<br>Brand A     |
|--|--------------------------|-------------------------|-----------------------------------|--------------------------|
| Product<br>4mm FR Aluminum Composite Material (ACM/MCM)                            | ✓                        | ✓                       | ✓                                 | ✓                        |
| Aluminum Alloy<br>3000 Series  | ✓                        | ✓                       | ✓                                 | ✓                        |
| Product Thickness<br>4mm / 0.157"  | ✓                        | ✓                       | ✓                                 | ✓                        |
| Aluminum Skin Thickness (inches) [nominal]<br>0.020" Top Skin / 0.020" Bottom Skin | ✓                        | ✓                       | ✓                                 | ✓                        |
| Panel Weight<br>Pounds per Square Foot   | 1.51                     | 1.53                    | 1.56                              | 1.56                     |
| Minimum Bond Strength<br>ASTM D1781 (in•lb/in)                                     | 22.5                     | 22.5                    | 22.5                              | 22.5                     |
| Flatwise Tensile Strength<br>ASTM C297 (Psi)                                       | 938                      | 961                     | 949                               | 765                      |
| Flexural Modulus<br>ASTM C393 (Psi)  | 5.38 x 10 <sup>6</sup>   | 6.7 x 10 <sup>6</sup>   | 5.77 x 10 <sup>6</sup>            | -                        |
| Modulus of Elasticity<br>ASTM E8 (Psi), **ASTM D638 (Psi)                          | 2.46 x 10 <sup>6</sup>   | -                       | -                                 | **2.93 x 10 <sup>6</sup> |
| Moment of Inertia<br>(in <sup>4</sup> /in)   | 1.9 x 10 <sup>-4</sup>   | 1.89 x 10 <sup>-4</sup> | -                                 | -                        |
| Tensile Strength (aluminum skin)<br>ASTM E8 (Psi), **ASTM D638 (Psi)               | 6.96 x 10 <sup>3</sup>   | -                       | 7.13 x 10 <sup>3</sup>            | **7.75 x 10 <sup>3</sup> |
| Yield Strength (aluminum skin)<br>ASTM E8 (Psi), **ASTM D638 (Psi)                 | 6.23 x 10 <sup>3</sup>   | 6.37 x 10 <sup>3</sup>  | 6.34 x 10 <sup>3</sup>            | **6.57 x 10 <sup>3</sup> |
| Elongation<br>ASTM E8 (%)  | 5                        | -                       | 5                                 | -                        |
| Coefficient of Expansion<br>ASTM D696 (in/in/°F)                                   | 1.44 x 10 <sup>-5</sup>  | 1.31 x 10 <sup>-5</sup> | 1.71 x 10 <sup>-5</sup>           | 1.11 x 10 <sup>-5</sup>  |
| Deflection Temperature<br>ASTM D648 (°F)   | › 239                    | -                       | › 242                             | › 185                    |
| Self Ignition Temperature<br>ASTM D1929 (°F)                                       | 775                      | -                       | 811                               | 783                      |

# ALFRED COLOR OFFERING

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# FR MCM FINISHES Standard Stocking

Painted coil and finished goods panel inventory  
2,000 sqft Production Order Minimum  
Matching 0.040in Flat Sheet finished goods inventory

## 2 COAT SOLIDS ▪ 30 Year Finish Warranty ▪ AAMA 2605

Matching 0.040" Flat Sheet in Inventory



**Classic White**  
JY-5I95



**Bone White**  
JY-5I65



**Ascot White**  
JY-5I10



**Alabaster**  
JY-6I65



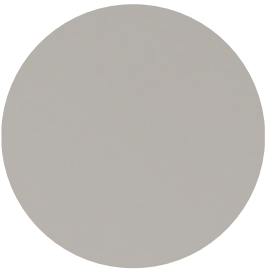
**Oyster**  
JY-5I25



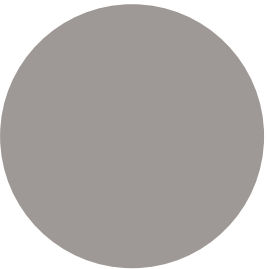
**Castle Gray**  
JY-6I60



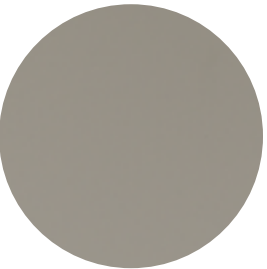
**Sea Wolf**  
JY-6I75



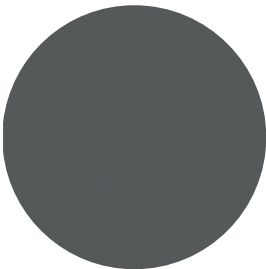
**Dove Gray**  
JY-6I20



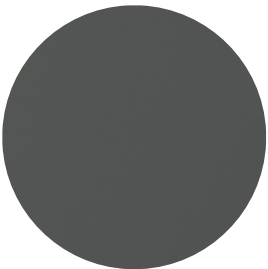
**Slate Gray**  
JY-6I45



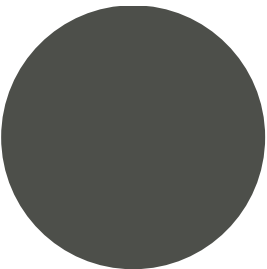
**Fashion Gray**  
JY-6I30



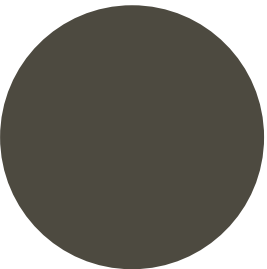
**Greyhound**  
JY-6I55



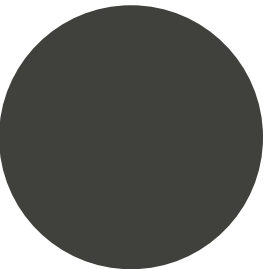
**Dark Gray**  
JY-6I40



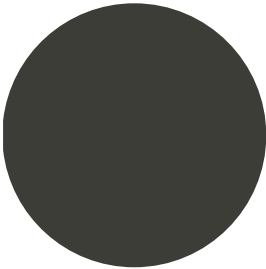
**Charcoal**  
JY-6I50



**Bronze**  
JY-6I80



**Black**  
JY-6220



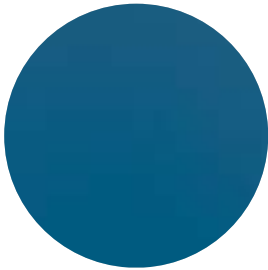
**Midnight Black**  
JY-6230

Solid colors are non-directional finishes therefore, directional arrows do not need to be installed in the same direction. However, special precautions must be taken since slight variations in color and gloss still occur between different production batches. These variations, though within industry tolerances, may still be detectable by the human eye in certain light conditions.

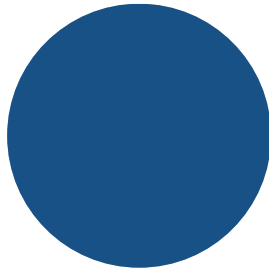
## VIVID SOLIDS\*

▪ 20 Year Limited Finish Warranty ▪ AAMA 2605

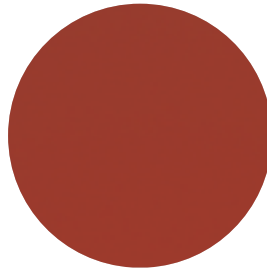
Matching 0.040" Flat Sheet in Inventory



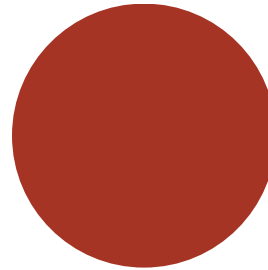
**Signal Blue**  
JY-7110 | 2 Coat Solid



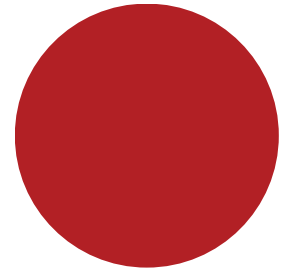
**Harmony Blue**  
JY-7115 | 2 Coat Solid



**Vibrant Red**  
JY-7120 | 3 Coat Solid



**Patriot Red**  
JY-7140 | 3 Coat Solid

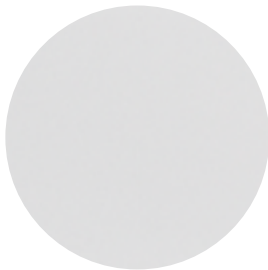


**Ron Red \***  
JY-7150 | 3 Coat Solid

## 2 COAT MICAS

▪ 30 Year Finish Warranty ▪ AAMA 2605

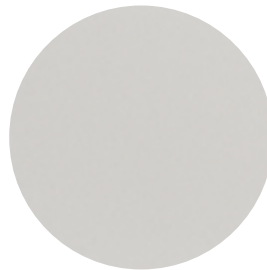
Matching 0.040" Flat Sheet in Inventory



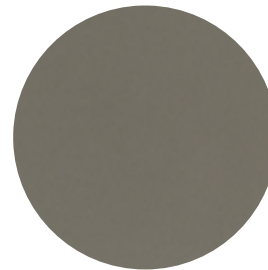
**Anodic Clear Mica**  
JY-2510



**Exotic Silver Mica**  
JY-2520



**Silversmith**  
JY-2515



**Gray Silver Mica**  
JY-2530



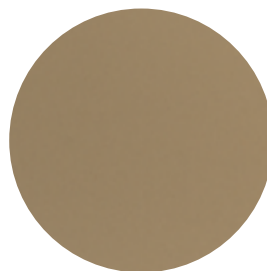
**Pewter Mica**  
JY-2540



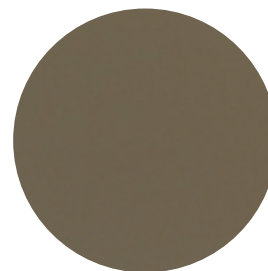
**MZG Gray Mica**  
JY-2535



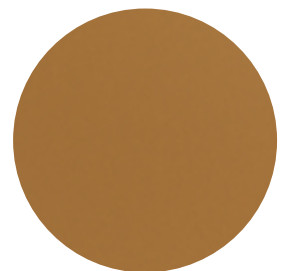
**Champagne Mica**  
JY-2550



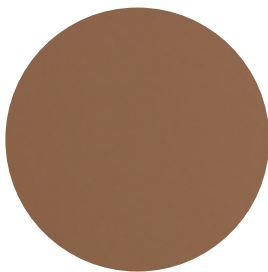
**Medium Bronze Mica**  
JY-2560



**Driftwood Mica**  
JY-2555



**Copper Penny Mica**  
JY-2570



**Hazelnut Mica**  
JY-2575



**New Age Dark Bronze Mica**  
JY-2580

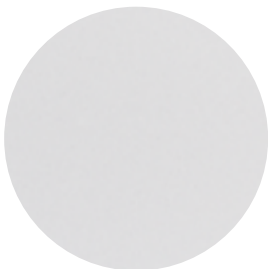
*\*Please contact us for warranty details.*

Mica, Metallic, and Design Series Finishes are directional finishes - requiring special precautions during planning, purchasing, fabrication, and installation in order to minimize the chance of visual color differences due to color batch variation and metallic flop. It is highly recommended that all material for a single project be ordered at the same time. With these finishes, directional arrows on product protective film should always be installed in the same direction.

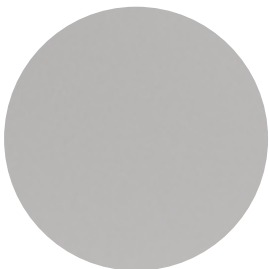
3 COAT METALLICS

▪ 30 Year Finish Warranty ▪ AAMA 2605


Matching 0.040" Flat Sheet in Inventory



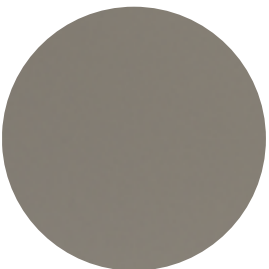
**Bright Silver Metallic**  
JY-3510




**Champagne Metallic**  
JY-3520



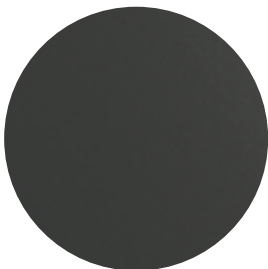
**PEX Pewter Metallic**  
JY-3540



**JLR Gray Metallic**  
JY-3550



**Anthracite Silver Metallic**  
JY-3560




**Graphite Metallic**  
JY-3530


METAL SERIES

▪ 20 Year Finish Warranty ▪ AAMA 2605


Matching 0.040" Flat Sheet in Inventory



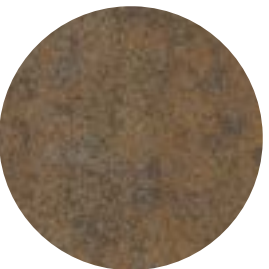
**Faux Zinc Lite**  
JY-MI30



**Faux Zinc**  
JY-MI20



**Faux Zinc Graphite**  
JY-MI10



**Tile Corten**  
JY-MI40

WOOD SERIES

▪ 20 Year Finish Warranty ▪ AAMA 2605


Matching 0.040" Flat Sheet in Inventory



**Teak**  
JY-WI20



**Golden Oak**  
JY-WI40



**Dark Walnut**  
JY-WI50

## NATURAL ZINC SERIES\*

\*Non-stocking item subject to minimum quantities. Bond integrity warranty only.



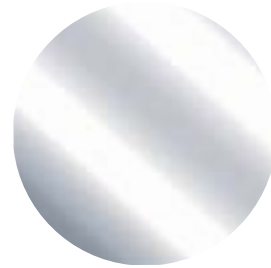
**Blue Grey**  
JY-ZI10



**Graphite Grey**  
JY-ZI00



**Hairline Clear**  
JY-HI00



**Mirror**  
JY-AI60

## SPECIALTY SERIES\*

## CUSTOM COLORS

- Matching custom colors is part of our everyday business.
- To begin the process, send us either a physical color sample (preferred), a coating manufacturer paint code, or a color reference such as a Pantone number. Please also detail specified performance requirements.
  - *Subject to minimum order quantities, matching 0.040" flat sheet can be coated at the same time as coil for MCM or Plate.*
  - *Achieving perfect color matches may not be possible every time due to inherent differences in substrate types, paint systems, pigments, and application methods.*
  - *For more information, please contact us for specific details.*



**Metal Wall Panels / Curtain Wall**



**Color Swatches / Codes / Physical Samples**

⚠ All finishes shown are print reproductions and may differ slightly from actual product finishes. Product samples are available for color verification and approval. Please visit our website at [www.alfrexusa.com](http://www.alfrexusa.com) for sample requests. Alfrex, Inc. reserves the right to modify all contents herein without prior notice.

\*Please contact us for warranty details.



# ALFRED FR MCM SPECIFICATION 07 42 13 COMPOSITE METAL WALL PANELS

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# ALFLEX FR MCM SPECIFICATION 07 42 13

## Composite Metal Wall Panels

### PART I: GENERAL

#### I.01 SCOPE

- A. Section Includes
  - 1. MCM - Fire Resistant Composite Metal Panels
  - 2. Panel systems requirements of composite fire resistive panels including exterior and interior installation assemblies, components, and accessories.
- B. Related Sections: Section(s) related to this section include:
  - 1. Division 05 Metal Framing Sections
  - 2. Division 07 Air and Vapor Barrier
  - 3. Division 07 Flashing and Trim Sections
  - 4. Division 07 Joint Treatment Section
  - 5. Division 08 Aluminum Windows Section
  - 6. Division 08 Glass and Glazing Section
  - 7. Division 08 Curtain Wall Sections

#### I.02 QUALITY ASSURANCE

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to the extent indicated. Standards listed have either been identified by the International Building Code (IBC), local building code, or specific requirement for this building construction type.
- B. Aluminum Association (AA)
  - 1. Aluminum Design Manual
  - 2. AA-MI2C22A4I: Anodized - Clear Coating
  - 3. AA-MI2C22A44: Anodized - Color Coating
- C. American Society for Testing and Materials (ASTM) International
  - 1. ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives
  - 2. ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics
  - 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
  - 4. ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
  - 5. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference
  - 6. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Wall, and Doors By Uniform Static Air Pressure Difference
- D. American Architectural Manufacturers Associations (AAMA)
  - 1. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
  - 2. AAMA 509 Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems.
- E. National Fire Protection Association (NFPA)
  - 1. NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

#### I.03 SYSTEM DESCRIPTION

- A. Performance Requirements:
  - 1. Provide installed MCM system designed to withstand specified loadings while maintaining allowable deflection, thermal movement performance as defined by the Manufacturer.
- B. Deflection and Thermal Movement: Provide installed MCM systems that have been designed to resist to

# ALFREX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

wind loading, acting inward and outward.

- I. Perimeter Framing Deflection: Deflection of panel perimeter framing member shall not exceed  $L/175$  normal to plane of the wall where  $L$  is the unsupported span of the perimeter framing member.
2. Panel Deflection: Deflection of the panel face shall not exceed  $L/60$  at design load where  $L$  is the unsupported span of the panel.
3. Anchor Deflection: At connection points of framing members to anchors, anchor deflection in any direction shall not exceed 0.0625in (1.6mm).
4. Thermal Movements: Allow for free and noiseless horizontal and vertical thermal movement due to expansion and contraction of component parts over a temperature range of  $-20^{\circ}\text{F}$  ( $-29^{\circ}\text{C}$ ) to  $+180^{\circ}\text{F}$  ( $82.2^{\circ}\text{C}$ ) at the material surface.
  - a. Buckling, opening of joints, undue stress on fasteners, failure of sealants, or any other detrimental effects of thermal movement will not be permitted.
  - b. Fabrication, assembly and erection procedures shall take into account the ambient temperature range at the time of the respective operation.
- C. Water and Air Leakage - Provide systems that have been tested and certified to conform to the following criteria:
  - I. Air Leakage, ASTM E283: Not more than 0.06cfm per  $\text{ft}^2$  of wall area ( $0.003\text{L/s m}^2$ ) when tested at 1.57psf (0.075kPa)
  2. Water Penetration: No water infiltration under static pressure when tested in accordance with ASTM E331 at a differential of 10% of inward acting design load, 6.24psf (0.299kPa) minimum, after 15 minutes.
    - a. Water penetration is defined as the appearance of uncontrolled water in the wall.
    - b. Wall design shall feature provisions to drain to the exterior face of the wall any leakage of water at joints and any condensation that may occur within the construction.
- D. Structural: Provide systems that have been tested in accordance with ASTM E330 at a design pressure of [specify design pressure in psf (kPa)] and have been certified to be without permanent deformation or failures of structural members.
- E. Fire Performance: Provide composite fire rated panels that have been evaluated and are in compliance with regulatory code agency requirements specified herein.

### I.04 SUBMITTALS

- A. Submit in accordance with Conditions of the Contract and Division 01 Submittal Procedures Sections.
- B. Submit product data, including manufacturer's brochures and Spec-Data Sheets.
- C. Shop Drawings: Submit shop drawings showing project layout and elevations; fastening and anchoring methods; detail and location of joints, sealants, and gaskets, including joints necessary to accommodate thermal movement; trim; flashing; and accessories.
- D. Samples: Submit selection and verification samples for finishes, colors and textures.
  - I. Selected Samples: Manufacturer's color charts or chips illustrating full range of colors, finishes and patterns available for composite metal panels with factory applied finishes.
  2. Verification Samples:
    - a. Panel System Assembly: Two samples of each assembly 12in x 12in (304mm x 304mm)
    - b. Two samples of each color in coil coated, or draw down samples on aluminum substrate, not less than 3in x 4in (76mm x 102mm)
- E. Quality Assurance Submittals - Submit the following:
  - I. Product Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties, or a third-part listing documenting compliance to a comparable code section.
  2. Product Certificates: Product certificates signed by manufacturer certifying materials comply with

# ALFREX FR MCM SPECIFICATION 07 42 13

## Composite Metal Wall Panels

specified performance characteristics and physical requirements.

3. Manufacturer's Product Literature
  4. Manufacturer's Field Reports: Manufacturer's field reports.
- F. Closeout Submittals - Submit the following:
- I. Warranty: Warranty documents specified.

### **I.05 QUALITY ASSURANCE**

#### **A. MCM Manufacturer Qualifications**

- I. MCM Manufacturer Qualifications: Company with a minimum of 10 years of continuous experience manufacturing MCM of the type specified.
  - a. Able to provide specified warranty on finish.
  - b. Able to provide a list of other projects of similar size, including approximate date of installation and name of Architect for each.
  - c. Able to produce the composite material without outsourcing of the fire-resistant core manufacture and compounding, or panel bonding process.

#### **B. MCM Fabricator Qualifications**

- I. MCM system fabricator will have at least (3) years of continuous documented experience fabricating the panel material type specified.
2. MCM system fabricator will have been in business under its present name for at least five (5) years prior to the start of this project.
3. MCM system fabricator will be capable of providing field service representation during construction.
4. MCM system fabricator will not have filed for protection from creditors under state or federal insolvency or debtor relief statutes or codes

#### **C. MCM System Installer Qualification**

- I. MCM system fabricator will have been in business under its present name for at least five (5) years prior to the start of this project and have experience with similar sized MCM system projects.
2. MCM system fabricator will be capable of providing field service representation during construction.
3. The MCM System Installer must be an approved installer by the MCM Fabricator for the installation of their MCM System and have undergone proper training for the specified system thereof.

#### **D. Mock-up**

- I. At location on building and to extent directed by Architect, install areas of specified wall panels, support framing, flashing, trim and accessories to show:
  - a. Substrate preparation
  - b. Support framing, furring, and flashing
  - c. Clearances and gaps between members
  - d. Fastening methods
  - e. Trim details
  - f. Joint protection
  - g. Workmanship
2. Prepare mock-up for Architect's approval before start of wall panel work. Prepare additional mock-ups, if required by Architect, until approved.
3. Maintain approved mock-up during construction to establish required standard of workmanship and basis of comparison for installation of wall panel work. Approved mock-up may remain as part of finished work.

#### **E. Installation Documents On-Site**

- I. Maintain copies of installation instructions, approved submittal and other execution related documents on-site; make available as needed to confirm proper installation.

# ALFLEX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

F. [ ]

### I.06 DELIVERY, STORAGE & HANDLING

- A. Adhere to manufacturer's ordering instructions and lead time requirements to avoid delays.
- B. Deliver materials to fabricator in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Protect finish of panels by applying heavy-duty removable plastic film during production.
- D. After fabrication, package composite wall panels for protection against transportation damage.
- E. Store material in accordance with manufacturer's guidelines.
  - 1. Exercise care unloading, storing and installing panels to prevent bending, warping, twisting and surface damage to the factory applied finish.
  - 2. Store materials protected from exposure to harmful weather conditions, out of direct sunlight when unpackaged, and at temperatures not to exceed 120°F.
  - 3. Protect panels from moisture and condensation with tarpaulins or other suitable weather tight covering installed to provide ventilation.
  - 4. Slope panels to ensure positive drainage of any accumulated water.
  - 5. Avoid contact with any other materials that might cause staining, denting or other surface damage to the factory applied finish.

### I.07 WARRANTY

- A. Manufacturer's Warranties: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
- B. Warranty Periods:
  - 1. Panel Integrity: 10 Years commencing on Date of Substantial Completion.
  - 2. Painted Finish: 30 Years commencing on Date of Substantial Completion.
  - 3. MCM Natural Metals: No finish warranty
  - 4. Anodized Finish: 5 Years commencing on Date of Substantial Completion

## PART 2: PRODUCTS

### 2.01 FIRE RESISTANT METAL COMPOSITE MATERIAL (MCM)

- A. Fire Resistant Metal Composite Material (MCM) Manufacturer
  - 1. Alflex, Inc. 943 Gainesville Hwy. Bldg 100-4000, Buford, GA 30518  
Phone - (470) 589-7449  
Website - <http://alfrexusa.com>  
Email - [alfrex@alfrexusa.com](mailto:alfrex@alfrexusa.com)

### 2.02 BASIS OF DESIGN

- A. Alflex FR - Metal Composite Material
- B. Description: Two sheets of aluminum sandwiching a solid core of extruded thermoplastic fire-resistant material formed in a continuous process with no glues or liquid adhesives between dissimilar materials. The core material shall be free of voids and/or air spaces and not contain foamed insulation material. Products that are laminated sheet by sheet in a batch process using glues or adhesives between materials shall not be acceptable.
- C. MCM Thickness:
  - 1. 4mm (0.157in)
  - 2. 6mm (0.236in)

# ALFLEX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

### D. MCM Face Sheets:

1. Front Face: 0.5mm (0.020in) nominal
2. Fire Resistant Mineral Core:
  - a. 3.0mm (0.117in) nominal - 4mm FR panel
  - b. 5.0mm (0.197in) nominal - 6mm FR panel
3. Back Face: 0.5mm (0.020in) nominal

### E. Aluminum Alloy: 3003-H16

### F. Weight:

1. 4mm: 1.51lb/ft<sup>2</sup> (7.37kg/m<sup>2</sup>)
2. 6mm: 2.13lb/ft<sup>2</sup> (10.40kg/m<sup>2</sup>)

### G. Finishes

- I. Coil coated KYNAR® 500 or HYLAR® 5000 based Polyvinylidene Fluoride (PVDF) or Fluoro Ethylene - Alkyl Vinyl Ether (FEVE) resin in conformance with the following general requirements of AAMA 2605.
  - a. Color: (Select one of the following)
    - 1) Standard color as selected by the owner / architect / engineer from manufacturer's standard, color selection.
      - a) 2 Coat Solid
      - b) 2 Coat Mica
      - c) 3 Coat Metallic
      - d) [ \_\_\_\_ ]
    - 2) Custom color to be matched by the panel supplier
      - a) 2 Coat Solid
      - b) 2 Coat Mica
      - c) 3 Coat Metallic
      - d) [ \_\_\_\_ ]
    - 3) Clear coat over hairline aluminum substrate.
  - b. Dry Film Thickness:
    - 1) 2 Coat: 1.0mil (±0.2mil)
    - 2) 3 Coat: 1.0mil (±0.2mil) + 0.50mil (±0.05mil)
  - c. Hardness: ASTM D3383; HB minimum using Eagle Turquoise Pencil
  - d. Impact Resistance
    - 1) Test method: ASTM D2794; Gardner Variable Impact Tester with 5/8" mandrel
    - 2) Coating shall withstand reverse impact of 1.5in/lbs per mil substrate thickness
    - 3) Coating shall adhere tightly to metal when subjected to #600 Scotch Tape pick-off test. Slight minute cracking permissible. No removal of film to substrate.
  - e. Adhesion:
    - 1) Test Method: ASTM D3359: Coating shall not pick-off when subjected to an 11in x 11in x 1/16in grid and taped with #600 Scotch Tape.
  - f. Humidity Resistance:
    - 1) Test Method: ASTM D2247
    - 2) No formation of blisters when subject to condensing water fog at 100% relative humidity and 100°F for 4000 hours.
  - g. Salt Spray Resistance:
    - 1) Test Method: ASTM B117; Expose coating system to 4000 hours, using 5% NaCl solution.
    - 2) Corrosion creepage from scribe line: 1/16" max.
    - 3) Minimum blister rating of 8 within the test specimen field.



# ALFLEX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

- h. Weather Exposure:
  - l) Outdoor:
    - a) 10 Year exposure at 45° angle facing south Florida exposure.
    - b) Maximum color change of 5 Delta E units as calculated in accordance with ASTM D2244
    - c) Minimum chalk rating of 8 in accordance with ASTM D4214
    - d) No checking, crazing, adhesion loss
  - i. Chemical Resistance:
    - l) ASTM D1308 utilizing 10% Muriatic Acid for an exposure time of 15 minutes. No loss of film adhesion or visual change when viewed by the unaided eye.
    - 2) ASTM D1308 utilizing 20% Sulfuric Acid for an exposure time of 18 hours. No loss of film adhesion or visual change when viewed by they unaided eye.
    - 3) AAMA 2605 utilizing 70% reagent grade Nitric Acid vapor for an exposure time of 30 minutes. Maximum color change of 5 Delta E units as calculated in accordance with ASTM D2244.

### 2.03 ALTERNATES

- A. Base Bid/Contract Manufacturer: [Specify base bid/contract manufacturer].
  - l. Product: [Specify product base bid/contract brand/trade name with product attributes and characteristics].
- B. Alternate No. [Specify #]: [Specify alternate manufacturer].
  - l. Product: [Specify product alternate brand/trade name with product attributes and characteristics].
- C. Alternate No. [Specify #]: [Specify alternate manufacturer].
  - l. Product: [Specify product alternate brand/trade name with product attributes and characteristics].

### 2.04 MCM PRODUCT PERFORMANCE

- A. Bond Integrity: Tested for resistance to delamination as follows:
  - l. Peel Strength ( ASTM D1781): 22.5in-lb/in (100N-m/m) minimum.
  - 2. No degradation in bond performance after 8 hours of submersion in boiling water at 212°F (100°C).
  - 3. No degradation in bond performance after and 21 days of immersion in water at 70°F (21°C).
  - 4. Thermally bonded to the fire-resistant core material in a continuous process under tension.
- B. Fire Performance:
  - l. Flamespread, ASTM E84: <25.
  - 2. Smoke Developed, ASTM E84: <450.
  - 3. Surface Flammability, Modified ASTM EI08: Pass.
  - 4. Ignition Temperature:
    - a. Flash, ASTM D1929: 716°F (380°C)
    - b. Ignition: 752°F (400°C)
  - 5. Flammability, Exterior, Non-load-bearing wall assemblies and panels, NFPA 285: Pass.
- C. Production Tolerances:
  - l. Width: ± 0.080in (2.0mm)
  - 2. Length: + 0.197in (5mm)
  - 3. Thickness (4mm Panel): ± 0.008in (0.2mm)
  - 4. Thickness (6mm Panel): ± 0.012in (0.3mm)
  - 5. Bow: Maximum 0.2% length or width.
  - 6. Squareness: Maximum 0.157in (4mm)

### 2.05 FABRICATION

- A. General: Shop fabricate to sizes and joint configurations indicated on drawings.
  - l. Fabricate panels too dimensions indicated on drawings based on an assumed design temperature of 70°F (21°C). Allow for ambient temperature range at time of fabrication.

# ALFLEX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

2. Formed MCM panel lines, breaks and angles to be sharp and true, with surfaces that are free from warp or buckle.
3. Fabricate panels with sharply cut edges and no displacement of face sheet or protrusion of core.
- B. Fabrication Tolerances: Shop-fabricate panels to sizes and joint configurations indicated on drawings.
  1. Width:  $\pm 0.079\text{in}$  [ $\pm 2.0\text{mm}$ ] @ 70°F (21°C)
  2. Length:  $\pm 0.079\text{in}$  [ $\pm 2.0\text{mm}$ ] @ 70°F (21°C)
  3. Squareness:  $\pm 0.079\text{in}$  [ $\pm 2.0\text{mm}$ ] @ 70°F (21°C)

### PART 3: EXECUTION

#### 3.01 METAL PLANT FABRICATOR AND INSTALLER INSTRUCTIONS

- A. Compliance: Comply with provide product data, including product technical bulletins, product catalog installation instructions and product carton instructions.

#### 3.02 EXAMINATION AND PREPARATION

- A. Verify that conditions of substrates previously installed under other sections or divisions are acceptable for metal plate panel rainscreen system installation. Documentation should be provided indicating any conditions detrimental to the performance or installation of the metal plate wall panel rainscreen system.
  1. Notify [Architect] of unacceptable conditions once discovered.
  2. Proceed with preparation and installation only after unacceptable conditions have been corrected.
- B. Field Measurements
  1. If required per project conditions, field measurements of the site condition are to be taken prior to beginning fabrication work and notification of any material modifications and resulting schedule adjustment shall be formally documented.
  2. Field measurements are to be made once all substrate and adjacent materials are installed, verifying the locations of wall framing members and wall opening dimensions before commencement of installation. Indicate measurements on the "As Build Shop Drawings".
- C. Project Schedule: Provisions in the project schedule must accommodate the time interval between field measurements and fabrication/installation.
- D. Miscellaneous Framing: Install miscellaneous MCM system support members and anchorage according to MCM System written instructions and drawings supplied by the MCM System Fabricator.

#### 3.03 INSTALLATION

- A. General:
  1. Install panels plumb, level and true in compliance with fabricator's recommendations.
  2. Anchor panels securely in place in accordance with fabricator's approved shop drawings.
  3. Comply with fabricator's instructions for installation of concealed fasteners and with provisions of Section 07 90 00 for installation of joint sealers.
  4. Installation Tolerances: Maximum deviation from horizontal and vertical alignment of installed panels: 0.25in in 20ft (6.4mm in 6.1m), noncumulative.
  5. Separate contact of dissimilar metals with bituminous paint, approved plastic shims, or other approved methods as defined within the Aluminum Design Manual (ASD). Use gasketed or approved coated fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.
- B. Related Products
  1. General: Refer to other related sections in Related Sections paragraph specified herein for related materials, including cold-form metal framing, flashing and trim, joint sealants, aluminum windows, glass and glazing and curtain walls.

# ALFREX FR MCM SPECIFICATION 07 42 I3

## Composite Metal Wall Panels

### 3.04 FIELD QUALITY REQUIREMENTS

- A. Field Quality Control: Comply with panel system fabricator's recommendations and guidelines for field forming of panels.
- B. Field Quality Control: When required by contract, mock-up shall be constructed and tested at the expense of the Architect/Owner/General Contractor.
- C. Testing Agency: If required, the Owner shall engage a qualified testing agency to perform tests and inspections.
- D. Fabricator's Field Services: Upon Owner's request, provide fabricator's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with fabricator's instructions.

### 3.05 ADJUSTING AND CLEANING

- A. Adjusting
  - 1. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and replacement are the responsibility of the General Contractor.
  - 2. Removal of panels damaged by other trades is the responsibility of the General Contractor.
  - 3. Repair components of the MCM system that present with minor damage provided said repairs are not visibly apparent at a distance of 10ft (3m) from the surface at a 90° angle per AAMA 2605.
  - 4. Remove and replace components of the MCM system damaged beyond repair.
  - 5. Remove protective film immediately after installation of MCM and immediately prior to completion of the MCM system work. Protective film intentionally left in place after panel installation on any elevation at the direction of the General Contractor, is the responsibility of the General Contractor.
  - 6. Any additional protection, after installation, is the responsibility of the General Contractor.
  - 7. Ensure weep holes and drainage channels are unobstructed and free of dirt and sealants.
  - 8. Promptly remove from the job site any damaged MCM panels, protective film, and other debris attributable to MCM system and installation, and legally dispose of said materials.
- B. Cleaning
  - 1. After MCM system installation remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

### 3.06 PROTECTION

- A. Protect installed products from damage during subsequent construction work until final inspection and acceptance by Owner
- B. [ \_\_\_\_ ]

END OF SECTION

# ALFRED FR MCM TECHNICAL DATA

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TECHNICAL DATA SHEET

Alfred FR Metal Composite Material 4mm



Fire Resistant & Non-Combustible Cladding

| COMPOSITION                   |                                |                     |
|-------------------------------|--------------------------------|---------------------|
| PROPERTY                      | 4mm FR                         | UNITS               |
| Aluminum Skin Alloy           | 3003-H16                       |                     |
| Panel Thickness               | 0.157                          | in                  |
|                               | 4.0                            | mm                  |
| Skin Thickness (nominal)      | 0.020                          | in                  |
|                               | 0.5                            | mm                  |
| Core Material                 | Fire rated mineral filled core |                     |
| Panel Weight                  | 1.51                           | lbs/ft <sup>2</sup> |
|                               | 7.37                           | kg/m <sup>2</sup>   |
| Specific Gravity (Product)    | 1.76                           |                     |
| Specific Gravity (Core Layer) | 1.43                           |                     |

| STANDARD SIZES         |              |       |         |
|------------------------|--------------|-------|---------|
| PROPERTY               | 4mm FR       |       | UNITS   |
| Standard Widths        | 50           | 62    | in      |
|                        | 1,270        | 1,575 | mm      |
| Other Available Widths | 40           | 49.2  | in      |
|                        | 1,020        | 1,250 | mm      |
| Standard Lengths       | Max 25 (300) |       | ft (in) |
|                        | 7,620        |       | mm      |

| PRODUCTION TOLERANCES |             |       |
|-----------------------|-------------|-------|
| PROPERTY              | 4mm FR      | UNITS |
| Width                 | + / - 0.080 | in    |
|                       | 2.0         | mm    |
| Length                | + / - 0.157 | in    |
|                       | 4.0         | mm    |
| Thickness             | + / - 0.008 | in    |
|                       | 0.20        | mm    |
| Squareness            | + / - 0.157 | in    |
|                       | 4.0         | mm    |

| FIRE PERFORMANCE        |                |
|-------------------------|----------------|
| TEST                    | RESULT         |
| ASTM E84 (Product)      | Class A        |
| ASTM E84 (Core Exposed) | Class A        |
| NFPA 285                | Passed         |
| CAN/ULC S102            | Class A        |
| CAN/ULC S134            | Passed         |
| ASTM E119               | 2 Hour Rating  |
| ASTM D635               | Classified CC1 |

| PRODUCT WARRANTY  |               |          |
|---|---------------|----------|
| See warranty tables and sample warranties for conditions and exclusions |               |          |
| Bond Integrity  | Alfred FR MCM | 10 Years |

| FINISH WARRANTIES   |               |          |
|---|---------------|----------|
| See warranty tables and sample warranties for conditions and exclusions |               |          |
| 2 Coat Solid / 2 Coat Mica  | Alfred FR MCM | 30 Years |
| 3 Coat Metallic   | Alfred FR MCM | 30 Years |
| 3 Coat Vivid Solid  | Alfred FR MCM | 20 Years |
| Wood and Metal Series   | Alfred FR MCM | 20 Years |
| Hairline Aluminum / Mirror  | Alfred FR MCM | 10 Years |

Alfred, Inc. endeavors to provide accurate and current technical information but cannot warrant or make any representations as to the accuracy or completeness of the information contained herein. All data is intended for informational purposes only and subject to change without notice. Please consult a licensed structural engineer for evaluations of structural soundness, specification, or final design.

| TECHNICAL PROPERTIES                      |            |                         |                     |
|---|------------|-------------------------|---------------------|
| PROPERTY                                  |            | 4mm FR                  | UNITS               |
| Minimum Bond Strength                     | ASTM D1781 | 22.5                    | in•lb/in            |
|   |            | 100                     | Nm/m                |
| Flatwise Shear Strength                   | ASTM C273  | 978 PSI                 | Psi                 |
|   |            | 6.74 Mpa                | Mpa                 |
| Flatwise Tensile Strength                 | ASTM C297  | 938 PSI                 | Psi                 |
|   |            | 6.47 Mpa                | Mpa                 |
| Core Shear Modulus                        | ASTM C393  | 9.42 x 10 <sup>3</sup>  | Psi                 |
|   |            | 64.9                    | Mpa                 |
| Transverse Shear Stress                   | ASTM C393  | 3.34                    | Psi                 |
|   |            | 23 x 10 <sup>-3</sup>   | Mpa                 |
| Flexural Stiffness                        | ASTM C393  | 1.02 x 10 <sup>3</sup>  | Psi                 |
|   |            | 7.03                    | Mpa                 |
| Flexural Modulus<br>(Flexural Elasticity) | ASTM C393  | 5.38 x 10 <sup>6</sup>  | Psi                 |
|   |            | 3.79 x 10 <sup>3</sup>  | Mpa                 |
| Modulus of Elasticity                     | ASTM E8    | 2.46 x 10 <sup>6</sup>  | Psi                 |
|   |            | 17 x 10 <sup>3</sup>    | Mpa                 |
| Tensile Strength                          | ASTM E8    | 6.96 x 10 <sup>3</sup>  | Psi                 |
|   |            | 48                      | Mpa                 |
| Yield Strength                            | ASTM E8    | 6.23 x 10 <sup>3</sup>  | Psi                 |
|   |            | 43                      | Mpa                 |
| Elongation                                | ASTM E8    | 5                       | %                   |
| Moment on Inertia                         | -          | 1.90 x 10 <sup>-4</sup> | in <sup>4</sup> /in |
|   |            | 1.36 x 10 <sup>-4</sup> | cm <sup>4</sup> /m  |
| Section Modulus                           | -          | 1.81 x 10 <sup>-3</sup> | in <sup>3</sup> /in |
|   |            | 6.77 x 10 <sup>-4</sup> | cm <sup>3</sup> /m  |
| Coefficient of Expansion                  | ASTM D696  | 1.44 x 10 <sup>-5</sup> | in/in°F (@-22-86°F) |
| Deflection Temperature                    | ASTM D648  | > 239                   | °F                  |
|   |            | > 115                   | °C                  |
| Self Ignition Temperature                 | ASTM 1929  | 775                     | °F                  |
|   |            | 413                     | °C                  |
| Core Density                              | -          | 0.054                   | lb/in <sup>3</sup>  |
|   |            | 1.5                     | g/cm <sup>3</sup>   |

| COATING PROPERTIES   |              |   |
|--|--------------|---|
| 70% Kynar 500 / Hylar 5000 Pvd Resin Coatings<br>AAMA 2605 Compliant |              |   |
| PROPERTY   | STANDARD     | COIL COATED ALUMINUM  |
| Color Uniformity   | ASTM D2244   | Max. 2 Delta E  |
| Color Retention - Fade   | ASTM D2244   | Delta E ≤ 5 units   |
| Chalk Rating   | ASTM D4214   | ≤ 8 units   |
| Specular Gloss   | ASTM D523    | ± 5 units   |
| Dry Film Hardness  | ASTM D3363   | F - 2H  |
| Dry Adhesion   | ASTM D3359   | No coating removal  |
| Abrasion Resistance  | ASTM D968    | Abrasion Coefficient Value ≥ 40                                 |
| Reverse Impact   | ASTM D2794   | No coating removal  |
| Muriatic Acid Resistance   | ASTM D1308   | No blistering or visual change                                  |
| Nitric Acid Resistance   | ASTM D1308   | ≤ 5 Delta E   |
| Alkali Mortar Resistance   | ASTM D1308   | No removal. No loss of adhesion or visual change                |
| Flexibility  | ASTM D4145   | 2T - no pick off  |
| Humidity Resistance  | ASTM D714    | 4000 hour exposure  |
|  | ASTM D2247   | Less than "few" blisters Size No. 8                             |
| Cyclic Corrosion   | ASTM B117    | 2000 hour exposure  |
|  | AAMA 2605-13 | Min. rating of 7 scribe or cut edge<br>Min. blister rating of 8 |

|  |  |                                |
|--|--|--------------------------------|
| Wall Panel Assembly                    | Alfred FR with ACCU-TRAC DS Pressure Equalized Rainscreen System<br>courtesy of Altech Panel Systems |                                |
| Testing Protocols                      | <a href="#">Florida Building Code / Miami-Dade County Requirements</a>                               | <a href="#">ASTM Standards</a> |
|  | TAS 201-94: Large Missile Impact Test, Level D, Wind Zone 4  | ASTM E283                      |
|  | TAS 202-94: Uniform Static Air Pressure  | ASTM E330                      |
|  | TAS 203-94: Cyclic Pressure Loading  | ASTM E331                      |
|  |  | ASTM E1996                     |
|  |  | ASTM E1886                     |
| Florida Product Approval               | FL I5337 (R2, R3, R4, R5)  |                                |
| Panel Size Referenced                  | 120 in wide x 60 in high   |                                |
| Engineering Evaluation Report Download | <a href="#">Report No.: 514689</a>   |                                |

ASTM E330 - Structural Performance

Panel Deflection

| Deflection Criteria | Deflection Inches |                 |               | Deflection (in) |                                | Permanent Set (in) |                                |
|---------------------|-------------------|-----------------|---------------|-----------------|--------------------------------|--------------------|--------------------------------|
| L/360               | 0.33              |                 |               | Measured        | Allowed Per TAS<br>202 (L/250) | Measured           | Allowed Per TAS<br>202 (L/720) |
| TAS 202 L/250       | 0.48              | Design Pressure | + 75.0 / psf  | 0.15            | 0.48                           | 0.01               | 0.17                           |
| L/240               | 0.50              |                 | - 75.0 / psf  | 0.10            | 0.48                           | < 0.01             | 0.17                           |
| L/180               | 0.67              | Test Pressure   | + 112.5 / psf | 0.23            | 0.48                           | 0.17               | 0.17                           |
| L/90                | 1.33              |                 | - 112.5 / psf | 0.17            | 0.48                           | 0.02               | 0.17                           |
| L/60                | 2.00              |                 |               |                 |                                |                    |                                |

Perimeter Framing Deflection

| Deflection Criteria | Deflection Inches |                 |               | Deflection (in) |                              | Permanent Set (in) |                              |
|---------------------|-------------------|-----------------|---------------|-----------------|------------------------------|--------------------|------------------------------|
| TAS 202 L/1333      | 0.09              |                 |               | Measured        | Allowed Per TAS 202 (L/1333) | Measured           | Allowed Per TAS 202 (L/3899) |
| L/720               | 0.17              | Design Pressure | + 75.0 / psf  | 0.01            | 0.09                         | 0.01               | 0.03                         |
| L/360               | 0.33              |                 | - 75.0 / psf  | 0.02            | 0.09                         | < 0.01             | 0.03                         |
| L/240               | 0.50              | Test Pressure   | + 112.5 / psf | 0.01            | N/A                          | < 0.01             | 0.03                         |
| L/175               | 0.69              |                 | - 112.5 / psf | 0.12            | N/A                          | < 0.01             | 0.03                         |

ASTM 283 - Air Infiltration

|                                | Results                      | Allowed per TAS 202          |
|--------------------------------|------------------------------|------------------------------|
| Air Leakage: 1.57 psf (25 mph) | 0.02 cfm / ft² (0.10 L/s/m²) | 0.06 cfm / ft² (0.30 L/s/m²) |
| Air Leakage: 6.27 psf (50 mph) | 0.04 cfm / ft² (0.20 L/s/m²) | 0.06 cfm / ft² (0.30 L/s/m²) |

ASTM E331 - Water Penetration

|   | Results | Allowed per TAS 202 |
|---|---------|---------------------|
| 20 psf: 15% of Positive Design Pressure at 960 Pa | Pass    | No Leakage          |

LEED is a world-renowned green building rating system that serves as an important tool in the building and construction industry. LEED certifications signify that buildings minimize their lifestyle impact on the environment through the compounded benefits of product selection, construction practices, performance, and recycling. The tables that follow summarize the direct and indirect benefits of Alfred FR Metal Composite Material wall panels. Alfred FR MCM can contribute to LEED® points under both versions 3 and 4 under the following areas:

MATERIALS & RESOURCES : Recycled Content MR Credit 4

|             |   |
|-------------|---|
| Calculation | 100% Post-Consumer Recycled Content + 50% Pre-Consumer Content  |
| LEED v3     | Use of recycled content constitutes at least 10% of the total value of materials in the project.<br>1 Point is awarded for 10%; 2 points are awarded for 20%. |
| LEED v4     | Use of recycled content constitutes at least 25% of the total value of permanently installed materials in the project.<br>1 Point is awarded.                 |

| PRODUCT   | THICKNESS | WEIGHT      | POST-CONSUMER RECYCLED % | PRE-CONSUMER RECYCLED % | LEED CONTRIBUTION | POINTS   |
|-----------|-----------|-------------|--------------------------|-------------------------|-------------------|----------|
| Alfred FR | 4mm       | 1.51 lbs/SF | 26.07%                   | 0%                      | 26.07%            | 2 Points |
| Alfred FR | 6mm       | 2.13 lbs/SF | 18.48%                   | 0%                      | 18.48%            | 1 Point  |

MATERIALS & RESOURCES : Regional Materials MR Credit 5

Alfred FR is manufactured from materials supplied from multiple sources and regions. Therefore, it is not possible to identify nor quantify a contribution to the Regional Materials MR Credit 5.

OPTIMIZE ENERGY PERFORMANCE : Energy & Atmosphere

Alfred FR may be able to indirectly contribute to LEED certification points for non-residential metal wall panel assemblies.

|         | U-VALUE | INDIRECT CONTRIBUTION               |
|---------|---------|-------------------------------------|
| LEED v3 | U-0.113 | BD+C; Eac1<br>(1 to 19 points)      |
| LEED v4 | U-0.093 | BD+C; EA credit<br>(1 to 18 points) |

MATERIAL SAFETY DATA SHEET

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

SECTION 1: PRODUCT IDENTIFICATION

|    |                                   |  |
|----|-----------------------------------|--|
| A. | Product Name                      | Alfred FR  |
| B. | Recommended Use                   | Fire-resistant composite wall cladding material  |
| C. | Restriction on Use                | None   |
| D. | Manufacturer/Importer/Distributor | <b>Alfred, Inc.</b><br>943 Gainesville Hwy.<br>Bldg. 100-4000<br>Buford, GA 30518 USA<br>+1.470.589.7449 |
| E. | Emergency Phone Number            | Chemtrec 1-800-424-9300  |
| F. | Website                           | www.alfredusa.com  |
| G. | Initial Release Date              | 14-February-2018   |
| H. | Revision Date                     | 01-July-2020   |
| I. | Version Number                    | 2.0  |

SECTION 2: HAZARD IDENTIFICATION

|    |                         |   |
|----|-------------------------|---|
| A. | Classification          | Not classified as hazardous per OSHA Hazard Communication Standard, 29 CFR 1910.1200. |
| B. | Safety Phrase(s)        | Not Applicable  |
|    | Hazard Statement(s)     | Not Applicable  |
|    | Signal Word             | Not Applicable  |
|    | Symbol(s)               | Not Applicable  |
|    | Precautionary Statement | Not Applicable  |
|    | - Prevention            | Not Applicable  |
|    | - Response              | Not Applicable  |
|    | - Storage               | Not Applicable  |

Alfred FR MCM is defined under OSHA Hazard Communications standard 29 CFR 1910.1200 as an “article”. As such, it is a manufactured item other than a fluid or particle, formed to a specific design during manufacture with end functions dependent in whole or in part upon its’ shape or design use during end use, and which under normal conditions of used does not release, or otherwise result in exposure to hazardous chemicals, nor pose a physical hazard or health risk to employees.

SECTION 3: COMPOSITE / INFORMATION ON INGREDIENTS

| Components                           | CAS Number | Percent % by Weight |
|--------------------------------------|------------|---------------------|
| Aluminum                             | 7429-90-5  | 38%                 |
| Magnesium Hydroxide Mineral Filler   | 1309-42-8  | 43%                 |
| Polyethylene                         | 9002-88-4  | 17%                 |
| Others (less than 1% each in weight) | -          | 2%                  |



# MATERIAL SAFETY DATA SHEET

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

## SECTION 4: FIRST-AID MEASURES

|   |  |
|---|--|
| A. Eye Contact  | Dust from processing. Rinse eyes with water or saline solution for at least 15 minutes. Seek medical attention from a physician.                                     |
| B. Skin Contact   | Dust from processing. Wash skin with soap and water for at least 20 minutes while removing contaminated clothing and shoes. Seek medical attention from a physician. |
| C. Inhalation   | Dust from processing. Move to fresh air. Seek medical attention from a physician.  |
| D. Ingestion  | Not inspected due to composition and form of product. Seek medical attention from a physician.   |
| E. Most Important Symptoms & Effects                                      | Prolonged exposure to dust and fumes may aggravate pre-existing chronic conditions of the skin or respiratory system.  |
| F. Indication if Immediate Medical Attention and Special Treatment Needed | Notify medical personnel of any situation and avoid overexposure to irritants.   |

## SECTION 5: FIRE FIGHTING MEASURES

|   |  |
|---|--|
| A. Suitable Extinguishing Media                 | Use Class D extinguishing agents on fines or molten metal. Do not use halogenated extinguishing agents on small chips, fines, or dust.                               |
| B. Specific Hazards                             | Dust from processing. Wash skin with soap and water for at least 20 minutes while removing contaminated clothing and shoes. Seek medical attention from a physician. |
| C. Special PPE and Precautions for Firefighters | Protective equipment including self-contained breathing apparatus.   |

## SECTION 6: ACCIDENTAL RELEASE MEASURES

|  |  |
|--|--|
| A. Personal & Environmental Precautions              | Avoid contact with sharp edges or heated metal. Wear protective gloves. No special environmental precautions are required.                                 |
| B. Method and Materials for Containment and Cleaning | Clean releases of dust by sweeping the area and depositing in a closed container. Take measures to block dust from reaching surface water or grassy areas. |

## SECTION 7: HANDLING AND STORAGE

|                                  |   |
|----------------------------------|---|
| A. Precautions for Safe Handling | Avoid generating dust. Avoid contact with sharp edges or heated metal. There is no visual difference between hot and cold aluminum. |
| B. Conditions for Safe Storage   | No special storage precautions noted.   |

MATERIAL SAFETY DATA SHEET

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

|   |   |   |
|---|---|---|
| A. OSHA Permissible Exposure Limit      | Aluminum  | 15mg/m <sup>3</sup> (Total), 10mg/m <sup>3</sup> (Respirable) |
|   | Magnesium Hydroxide   | 10mg/m <sup>3</sup> (Total), 5mg/m <sup>3</sup> (Respirable)  |
|   | Polyethylene  | 10mg/m <sup>3</sup> (Total), 5mg/m <sup>3</sup> (Respirable)  |
| B. Appropriate Engineering Controls     | A system of local and/or general exhaust is recommended to keep employee exposures below the Exposure Limits.             |   |
| C. Individual Protection Measures (PPE) |   |   |
| - Eye & Face Protection                 | Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.              |   |
| - Respiratory Protection                | Use an approved respirator designed for the specific hazards where concentrations exceed exposure limits.                 |   |
| - Skin & Body Protection                | Wear cut resistant gloves and avoid contact with sharp edged objects and materials  |   |
| - Thermal Protection                    | When handling heated materials, wear gloves and proper clothing to cover exposed areas and protect against thermal burns. |   |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

|   |                            |                |
|---|----------------------------|----------------|
| A. Appearance                                     | Solid, Various Colors      |                |
| B. Odor   | Odorless                   |                |
| C. Odor Threshold                                 | Not Applicable             |                |
| D. pH   | Not Applicable             |                |
| E. Melting Point / Freezing Point                 | Aluminum                   | 660°C (1221°F) |
|   | Magnesium Hydroxide        | 105°C (220°F)  |
|   | Polyethylene               | 350°C (662°F)  |
| F. Flash Point                                    | Not Applicable             |                |
| G. Evaporation Rate                               | Not Applicable             |                |
| H. Flammability (Solid, Gas)                      | Not Applicable             |                |
| I. Upper / Lower Flammability or Explosive Limits | Not Applicable             |                |
| J. Solubility                                     | Insoluble                  |                |
| K. Vapor Density                                  | Not Applicable             |                |
| L. Specific Gravity                               | 1.7 - 1.9g/cm <sup>3</sup> |                |
| M. Partition Coefficient: n-Octanol/water         | Not Applicable             |                |
| N. Auto Ignition Temperature                      | 460°C (860°F)              |                |
| O. Decomposition Temperature                      | Not Applicable             |                |
| P. Viscosity                                      | Not Applicable             |                |
| Q. Molecular Weight                               | Not Applicable             |                |

# MATERIAL SAFETY DATA SHEET

Alfred FR Metal Composite Material



Fire Resistant & Non-Combustible Cladding

## SECTION 10: STABILITY AND REACTIVITY

|  |   |
|--|---|
| A. Chemical Stability                  | Stable under recommended storage and handling conditions.   |
| B. Possibility of Hazardous Reactivity | Stable under recommended storage and handling conditions.   |
| C. Conditions to Avoid                 | Heating, flames and hot surfaces.   |
| D. Incompatible Materials              | Combustible materials.  |
| E. Hazardous Decomposition Products    | Carbon monoxide, carbon dioxide, nitrogen oxide and smoke. Under certain conditions some aliphatic aldehydes and carboxylic acids may form. |

## SECTION 11: TOXICOLOGICAL INFORMATION

|                             |  |
|-----------------------------|--|
| A. Toxicity Data            | No toxicity data available for finished panel or individual components.                              |
| B. Suspected Cancer Agent   | Trace elements used in the paint coatings for this product may be known cancer causing agents.       |
| C. Irritancy of Product     | Airborne particles of aluminum and or product materials may irritate the eyes and respiratory tract. |
| D. Sensitization of Product | The product is not known to cause human skin or respiratory sensitization.                           |

## SECTION 12: ECOLOGICAL INFORMATION

|                                  |                      |
|----------------------------------|----------------------|
| A. Ecotoxicity                   | No toxicity effects. |
| B. Persistence and Degradability | Not Applicable       |
| C. Bio-accumulative Potential    | Not Applicable       |

## SECTION 13: DISPOSAL INFORMATION

Disposal must be in accordance with current applicable laws and regulations and material characteristics at time of disposal. Recover and reclaim or recycle, if practical. Aluminum in the form of particle may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.

## SECTION 14: TRANSPORTATION

|                                 |                |
|---------------------------------|----------------|
| A. UN Number                    | Not Applicable |
| B. UN Proper Shipping Name      | Not Applicable |
| C. Transport Hazard Class       | Not Applicable |
| D. Packing Group                | Not Applicable |
| E. Environmental Hazards        | Not Applicable |
| F. Special Precautions for User | Not Applicable |

SECTION 15: REGULATORY INFORMATION

OSHA: NOT classified as hazardous under the criteria in 29 CFR 1910.1200, Hazard Communication.

U.S. SARA REPORTING REQUIREMENTS: The product components are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for any component of the product.

U.S. TSCA INVENTORY STATUS: The components of this product are listed in the TSCA Inventory.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): There may be elements present in the dust generated from the processing of this product, trace amounts, that are on the California Proposition 65 list. Warning! This product contains chemicals known to the State of California to cause cancer.

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are on the DSL Inventory, or are exempted from listing.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION AND SYMBOLS: Not Applicable

SECTION 16: OTHER INFORMATION

The information contained herein is believed to be accurate. It is not intended to constitute performance information related to this product. ALFRED, INC. MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OF COMPLETENESS OF THE INFORMATION AND DATA HEREIN. THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED. ALFRED, INC. has no responsibility or liability for any damage or injury resulting from abnormal use or from any failure to adhere to recommended procedures. ALFRED, INC. will not be responsible for claims relating to any parties' use of reliance on information and data contained herein regardless of whether it is claimed that the information is inaccurate, incomplete, or otherwise misleading.

|                 |                  |
|-----------------|------------------|
| Initial Release | 14-February-2018 |
| Revision Date   | 01-July-2020     |
| Revision Number | 2.0              |

PRODUCT FABRICATION QUICK REFERENCE DATA

Alfred FR Metal Composite Material and Alfred Plate



Fire Resistant & Non-Combustible Cladding

| SECTION                          | SUB-SECTION                        | DESCRIPTION       | ALFREX FR MCM                               |   |                |                | ALFREX PLATE 3mm  |  |
|----------------------------------|------------------------------------|-------------------|---|---|----------------|----------------|---|--|
| CUTTING                          | Circular Saw<br>Vertical Panel Saw | Blade Type        | Carbide tipped blades suitable for aluminum |   |                |                | Carbide tipped blades suitable for aluminum   |  |
|                                  |                                    | Blade Diameter    | 80"<br>(200mm)                              | 10"<br>(250mm)                              | 12"<br>(300mm) | 14"<br>(350mm) | 9" (229mm) with 1" arbor  |  |
|                                  |                                    | Blade Teeth       | 60 tooth or greater, extra fine             |   |                |                | 68 tooth or greater, extra fine   |  |
|                                  |                                    | Max Cutting Speed | 5,500 RPM                                   |   |                |                | 3,200 RPM   |  |
|                                  |                                    | Feed Rate         | ◁ 16" (405mm) per second                    |   |                |                | 40" - 80" (1000-2032mm) / minute  |  |
|                                  | Shear Press                        | Clearance         | 4mm FR : 0.002" (0.05mm)                    |   |                |                | 1/4" (6.3mm) Power Shear with Rake Angle of 0.25" per foot (21mm per meter) and 1° relief angle |  |
|                                  |                                    |                   | 6mm FR : 0.008" (0.20mm)                    |   |                |                |   |  |
|                                  |                                    | Rake Angle        | 4mm FR : 1° 30'                             |   |                |                |   |  |
|                                  |                                    |                   | 6mm FR : 2° 30'                             |   |                |                |   |  |
|                                  | CUTTING & ROUTING                  | Routing Saw Blade | Blade Type                                  | Carbide tipped blades suitable for aluminum |                |                |   | See Circular Saw / Vertical Panel Saw Information<br>Lubrication May be Required |
| Teeth                            |                                    |                   | 8 teeth for grooving                        |   |                |                |   |  |
| Estimated Lifespan               |                                    |                   | -   |   |                |                |   |  |
| Blade Diameter                   |                                    |                   | 12", (-305mm)                               |   |                |                |   |  |
| Blade Tip Width V-Groove         |                                    |                   | 0.063" - 0.080" (1.6mm - 2mm)               |   |                |                |   |  |
| Blade Tip Width U-Groove         |                                    |                   | 0.551" (14mm)                               |   |                |                |   |  |
| Blade Tip Angle                  |                                    |                   | 95° or 110°                                 |   |                |                |   |  |
| Recommended Route Depth          |                                    |                   | 0.122" (3.1mm)                              |   |                |                |   |  |
| Route Depth from Outer Skin Side |                                    |                   | 0.035" (0.9mm)                              |   |                |                |   |  |
| Rotation Speed                   |                                    |                   | 3,000 - 5,000 RPM                           |   |                |                |   |  |
| Feed Rate                        |                                    |                   | ◁192" (4876mm) / min                        |   |                |                |   |  |
| Bit Lubrication                  |                                    |                   | Not Required                                |   |                |                |   |  |

PRODUCT FABRICATION QUICK REFERENCE DATA

Alfred FR Metal Composite Material and Alfred Plate



Fire Resistant & Non-Combustible Cladding

| SECTION           | SUB-SECTION         | DESCRIPTION  | ALFRED FR MCM                      | ALFRED PLATE 3mm   |
|-------------------|---------------------|--|------------------------------------|--|
| CUTTING & ROUTING | V-Groove Router Bit | Router Bit Type  | Carbide Router Bits                | Poly-Crystalline Diamond (PCD) Helical End Mill Bits                     |
|                   |                     |  |                                    | Belin Carbide Router Bit   |
|                   |                     | Teeth  | 2 to 4 Teeth                       | Not Applicable   |
|                   |                     | Estimated Lifespan   | -                                  | 54,000 - 64,500sqft (5,000 and 6,000sqm)                                 |
|                   |                     | Router Bit Diameter  | -                                  | >0.315" <0.47" ( >8mm <12mm)   |
|                   |                     | Router Bit Tip Diameter  | 0.063" - 0.080" (1.6mm - 2mm)      | 0.0480" - 0.0591" (1.22mm - 1.50mm)                                      |
|                   |                     | Bit Angle  | 95° or 110°                        | 95° or 110°  |
|                   |                     |  |                                    | 108°   |
|                   |                     | Recommended Router Depth   | 0.122" (3.1mm)                     | 0.090" (2.3mm)   |
|                   |                     | Route Depth from Outer Skin Side                                     | 0.035" (0.9mm)                     | 0.0275" (0.7mm)  |
|                   |                     | Double Parallel Routes - minimum distance centerpoint to centerpoint | 1.0" (25mm)                        | 0.236" (6mm)   |
|                   |                     | Rotation Speed   | 20,000 - 30,000 RPM                | 15,000 - 20,000 RPM  |
|                   |                     |  |                                    | 16,000 RPM   |
|                   |                     | Feed Rate  | 120" - 192" (3,100 - 4876mm) / min | 40" - 118" (1,000 - 3,000mm) / minute                                    |
|                   |                     |  |                                    | 40" - 80" (1000 - 2032mm) / minute                                       |
|                   |                     | Bit Lubrication  | Not Required                       | Ethanol or cutting oil based applied continuously to the router bit tip. |
|                   | U-Groove Router Bit | Router Bit Type  | Carbide Router Bits                | Please refer to above V-Groove Router Bit Information                    |
|                   |                     | Teeth  | 2 to 4 Teeth                       |  |
|                   |                     | Router Bit Tip Diameter  | 0.551" (14mm)                      |  |
|                   |                     | Bit Angle  | 95° or 110°                        |  |
|                   |                     | Recommended Router Depth   | 0.098" (2.5mm)                     |  |
|                   |                     | Route Depth from Outer Skin Side                                     | 0.060" (1.5mm)                     |  |
|                   |                     | Rotation Speed   | 20,000 - 30,000 RPM                |  |
|                   |                     | Feed Rate  | 120" - 192" (3100 - 4876mm) / min  |  |
|                   |                     | Bit Lubrication  | Not Required                       |  |
| FOLDING           |                     | Routed Panel Minimum Bend Radius                                     | 0.080" (2mm)                       | 0.080" (2mm)   |
|                   |                     | Non-Routed Minimum Bend Radius                                       | Not Applicable                     | 3mm Plate: 0.30" (7.5mm)   |

PRODUCT FABRICATION QUICK REFERENCE DATA

Alfred FR Metal Composite Material and Alfred Plate



Fire Resistant & Non-Combustible Cladding

| SECTION                         | SUB-SECTION                         | DESCRIPTION                                     | ALFRED FR MCM  | ALFRED PLATE 3mm  |
|---------------------------------|-------------------------------------|---|--|---|
| CURVING                         | Press<br>Break<br>Pyramid<br>Roller | Minimum Bend Radius<br>(No Routing)             | 4mm FR : 4.0" (102mm)  | 5.5" (140mm)  |
|                                 |                                     |   | 6mm FR : 5.5" (140mm)  |   |
| DRILLING                        |                                     | Drill Bit Type                                  | High speed steel, twist drill bits   | High speed steel, twist drill bits  |
|                                 |                                     | Tip Angle                                       | 100° to 140° or a counter-bore grind with a centering tip  | 100° to 140° or a counter-bore grind with a centering tip   |
|                                 |                                     | Rotation Speed                                  | 165-980 RPM  | 165-980 RPM   |
| PUNCHING                        |                                     | Punch Die Clearance                             | 4mm FR : 0.008" (0.2mm)  | 0.012" (0.3mm)  |
|                                 |                                     |   | 6mm FR : 0.012" (0.3mm)  |   |
| PERFORATING                     |                                     | General   | Only with approved machinery and methods   | Only with approved machinery and methods  |
|                                 |                                     | Panel Reaction                                  | MCM Panels can bow slightly after perforation  | Better solution for perforated panel applications   |
|                                 |                                     | Total Perforated Area                           | Less than or equal to 45% of total panel surface area  | Less than or equal to 30% of total panel surface area   |
|                                 |                                     | Distance between Perforations<br>(Edge to Edge) | 1.5 x Panel Thickness  | 1.5 x Panel Thickness<br>0.177" (4.5mm)   |
|                                 |                                     |   | 4mm FR : 0.236" (6mm)  |   |
|                                 |                                     |   | 6mm FR : 0.354" (9mm)  |   |
|                                 |                                     | Minimum Distance from Perimeter Edge            | 1.25" (32mm)   | 1.25" (32mm)  |
|                                 |                                     | Maximum Finish Warranty                         | Not Available  | 10 Years maximum with perforated panels   |
|                                 |                                     | Recommended Machinery / Process                 | Turrent punch press only   | Turret punch press, punch press, tooled brake press, pre-approved water jet   |
| JOINING, FASTENING,<br>RIVETING |                                     | Non-Recommended Methods                         | Operations which can cause heat damage to the top paint layer, leaving exposed aluminum vulnerable to oxidation. Consult Alfred for more specifics.  | Operations which can cause heat damage to the top paint layer, leaving exposed aluminum vulnerable to oxidation. Consult Alfred for more specifics.   |
|                                 |                                     |   | Only utilize Aluminum, Stainless Steel or steel materials coated or plated with zinc or aluminum. Do NOT use materials which will result in electrolysis including iron, uncoated steel, copper, brass, or bronze. | Only utilize Aluminum, Stainless Steel, or steel materials coated or plated with zinc or aluminum. Do NOT use materials which will result in electrolysis including iron, uncoated steel, copper, brass, or bronze. Only utilize aluminum rivets suitable for use with structural loads and high external temperatures. |
| WELDING                         |                                     |   | Not recommended as it will damage the panel and void all warranties  | Not recommended for coil coated plate as it will damage the paint coating and void the finish warranty  |

# ALFRED FR MCM CERTIFICATIONS & COMPLIANCE REPORTS

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# ICC-ES Evaluation Report

ESR-4566

Reissued April 2025

This report also contains:


- [City of LA Supplement](#)

Subject to renewal April 2026

- [CA Supplement](#)

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|  |   |  |   |
|--|---|--|---|
| <p><b>DIVISION: 07 00 00—<br/>THERMAL AND<br/>MOISTURE<br/>PROTECTION</b></p> <p><b>Section: 07 42 43—<br/>Composite Wall Panels</b></p> | <p><b>REPORT HOLDER:</b></p> <p><b>ALFREX, INC.</b></p> | <p><b>EVALUATION SUBJECT:</b></p> <p><b>ALFREX FR<br/>COMPOSITE PANELS</b></p> |  |
|--|---|--|---|

## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following code:

- 2021 and 2018 [International Building Code® \(IBC\)](#)

### Properties evaluated:

- Interior Finish
- Structural
- Fire-Resistance

### 1.2 Evaluation to the following green code(s) and/or standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

### Attributes verified:

See Section 3.1

## 2.0 USES

Alfrex FR composite panels are the cladding component of the MCM systems (fabricated panels and extrusion attachment systems), used as exterior wall panels in accordance with Chapter 14, and as interior wall finish in accordance with Chapter 8 of the IBC.

When Alfrex FR MCM panels are used on exterior walls of Types I through IV Construction, they must be installed in accordance with Section 4.5 of this report.

## 3.0 DESCRIPTION

### 3.1 General:

Alfrex FR panels are metal composite materials (MCM) that comply with the requirements of IBC Section 1406. The panels are fabricated to size and fitted with aluminum profiles used for stiffening the panel against deflection and for anchorage to the building substructure.

The attributes of the composite panels have been verified as conforming to the provisions of (i) CALGreen Sections A4.405.1.3 (prefinished materials) and A5.406.1.2 (reduced maintenance); (ii) ICC 700-2020 Sections 601.7 and 11.601.7 and ICC 700-2015 and ICC 700-2012 Sections 601.7, 11.601.7, and 12.1(A).601.7 (site-applied finishing materials); and (iii) ICC 700-2008 Section 601.7 (site-applied finishing materials). Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. The code may provide supplemental information as guidance.

### 3.2 Material:

Alfred FR metal composite material consists of 0.019-inch (0.5 mm) thick aluminum facers bonded to both sides of a 0.118-inch (3 mm) extruded copolymer core material containing polyethylene with inorganic and fire-retardant fillers. The core components are compounded and extruded to form the final core profile and then bonded to the facers in a continuous process involving controlled heat and pressure to make the MCM. The aluminum facers may be painted or anodized as required.

Alfred FR material is manufactured in a nominal thickness of 0.157 inch (4 mm) and is available in widths up to 62 inches (1575 mm) and lengths up to 25 feet (7620 mm).

The Alfred FR panels have a Class A interior finish classification with a flame spread index less than 25 and a smoke developed index less than 450 when tested in accordance with ASTM E84.

### 3.3 Aluminum Extrusions:

The aluminum extrusions used as stiffeners and for perimeter anchorage are typically extruded 6063-T5 alloy aluminum complying with ASTM B317. Stiffener extrusions are adhered to the backside of the panel using a combination of tape and structural adhesive. Perimeter extrusions are mechanically fastened to the fabricated "return leg" of the panel and fastened to the substructure to transfer panel loading.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

The maximum allowable design wind load pressure for the Alfred FR system installed in accordance with this report is +20 psf and -35 psf (+958 N/m<sup>2</sup> and -1677 N/m<sup>2</sup>). The MCM panel system as well as the MCM panel support framing, including wall studs and extrusions must be designed in accordance with the IBC to support applicable load combinations.

### 4.2 Installation:

The MCM fabricator (Fabricator) cut a route into the flat MCM panels a fixed distance from each edge leaving the face sheet uncut at the base of the routed groove. The edges are then folded to a 90-degree angle to create return legs measuring 3/4-inch (19 mm) deep, using the uncut facer to act as a hinge so that the flat MCM panel is formed into a pan shape. The Fabricator then attaches the aluminum perimeter extrusions to each return leg with No. 10 corrosion-resistant self-drilling screws. The Fabricator also installs H-shaped aluminum stiffeners to the back facer of the panels, parallel to the 60 inches (1524 mm) maximum panel span at a maximum spacing of 24 inches (610 mm) on center. The stiffeners are adhered to the back side of the MCM panels using self-adhering foam tape and an approved structural silicone sealant/adhesive complying with ASTM C1184, and attached to the perimeter aluminum extrusions with No. 8 corrosion-resistant self-drilling screws at each end. The maximum panel width, measured in the direction parallel to the stiffeners, must not exceed 5 feet (1.52 m). The perimeter extrusions are anchored with 2-inch (51 mm) aluminum anchor clips that interlock with the perimeter extrusion and are then attached to the supporting structure as determined by a registered design professional.

MCM systems must be assembled in a fabrication facility with only minor adjustments allowed to account for an accurate system installation. The appropriate installation procedures must follow the manufacturer's published installation instructions and the specific requirements of this report must be strictly adhered to.

### 4.3 Interior Wall Covering:

Alfred FR panels may be used as an interior wall finish in compliance with IBC Chapter 8. The panels must be installed on the interior side of the wall in accordance with Section 4.2 of this report. The panels have a class A interior finish classification.



#### 4.4 Two-hour Fire-resistance-rated Nonload-bearing Wall Assembly:

Where exterior nonload-bearing walls are required to be of two-hour fire-resistance-rated, the Alfrex FR panels must be built in accordance with the following:

Two layers of Type X gypsum board must be installed with the long dimension oriented perpendicular to minimum 25-gage thick steel studs spaced 24 inches (610 mm) on center on both the interior and exterior surfaces. The base layer must be fastened to the framing with 1<sup>1</sup>/<sub>4</sub>-inch (31.8 mm) Type S self-drilling drywall screws spaced 16 inches (406 mm) on center. The face layer must be installed with the long dimension oriented horizontally offset 24 inches from the base layer and secured using 1<sup>5</sup>/<sub>8</sub>-inch (41.3 mm) self-tapping Type S drywall screws spaced 16 inches (406 mm) on-center, 8-inch (203 mm) offset from those of the base layer. The opposite side of the wall assembly must receive the gypsum board in the same manner, but with the joints offset 24 inches (610 mm) from the opposite side of the assembly. The joints and fasteners of the face layers must receive a Level 2 finish.

The MCM panels must be installed in accordance with Section 4.2 of this report and this section. The MCM panel must be installed with the long dimension oriented vertically leaving a nominal 1/2-inch (12.7 mm) wide joint between panel edges. The MCM panels must be secured to the perimeter extrusions using No. 12 corrosion-resistant self-drilling screws. The joint must be filled with 0.875-inch-thick (22 mm-thick) open cell polyurethane backer rod (Industrial Thermo Polymers Limited Tundra Foam) and then sealed using Dow Corning 795 silicone sealant/adhesive.

#### 4.5 Exterior Walls of Buildings of Type I, II, III or IV (Noncombustible) Construction of Any Height in Accordance with IBC Section 1406.10:

Where exterior walls are required to be of noncombustible construction, Alfrex FR panels must be built in accordance with the following:

The walls must be framed with minimum 20 gage C-channel steel studs at 24 inches (610 mm) on center. The interior surface of the wall must be faced with one layer of 5/8-inch (16 mm) thick Type X gypsum board in compliance with ASTM C1396. The gypsum board must be fastened to the wall framing with No. 6 by 1<sup>1</sup>/<sub>4</sub>-inch (31.8 mm) long, self-drilling screws with a spacing of 8 inches (203 mm) around the board perimeter and 12 inches (305 mm) in the field. Gypsum board joints and fastener heads must be finished and taped in accordance with ASTM C840 or GA216. The walls must be filled with 4 pcf (64 kg/m<sup>3</sup>) mineral wool insulation at the intersection of the floor and exterior wall in accordance with IBC Section 715.4.

The exterior surface of the wall assembly must be faced with one layer of horizontally installed 5/8-inch (16 mm) thick gypsum sheathing in compliance with ASTM C1177. The gypsum sheathing must be fastened to the wall framing with No. 6 by 1<sup>1</sup>/<sub>4</sub>-inch (31.8 mm) long, corrosion-resistant self-drilling screws at a spacing of 8 inches (203 mm) around the board perimeter and 12 inches (305 mm) in the field. Openings must be framed with No. 20 gage cold-formed steel framing. 0.040-inch (1.1 mm) thick aluminum flashing must be installed around the opening.

The exterior gypsum sheathing was covered with VaproShield® WrapShield® SA as a water membrane (water-resistive barrier). The self-adhering membrane must be installed with a minimum 6 inches (152 mm) overlap in accordance with the manufacturer's installation instructions.

Horizontally placed 18 gage thick cold-formed steel Z-shaped members are attached to frame wall studs using corrosion-resistant 5/16-inch-diameter (8 mm-diameter) hex head self-drilling screws. 3 inches (76 mm) thick mineral wool insulation with a density of 6.2 pcf (100 kg/m<sup>3</sup>) is installed between the Z-shaped members. The MCM panel system is attached through the aluminum perimeter extrusions in accordance with Section 4.2 of this report. The MCM panels were secured to the Z-shaped steel members using 5/16-inch-diameter (8 mm-diameter) hex-head self-drilling screws fastened to aluminum clips spaced 24 inches (610 mm) on center around the perimeter of the MCM panels. The MCM panel joints measured 1/2-inch (12.7 mm) wide. MCM panel splines were installed into vertical and horizontal panel joints to conceal the anchor fasteners.

#### 5.0 CONDITIONS OF USE:

The Alfrex FR composite panels and panel installation system described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:



- 5.1 Installation must comply with this report, the manufacturer's published instructions, the applicable code and the approved plans. If there are any conflicts between this report and the manufacturer's installation instructions, this report governs. A copy of the manufacturer's instructions must be available on the jobsite during installation.
- 5.2 The design of the structural support system (building framing, attachment accessories, and fasteners) and panel connections provided by the MCM systems fabricator must be submitted to and approved by the code official for each project. The allowable load capacity reported in Section 4.1 of this report must equal or exceed the design loads determined in accordance with Chapter 16 of the IBC.
- 5.3 The MCM systems fabricator must provide a certificate of compliance to the code official attesting that the MCM system fabrication includes the use of adhesives approved for use, that the adhesive application complies with the adhesive manufacturer's installation guidelines, and that the MCM system fabrication complies with approved construction documents. Additionally, when the attachment methods employ adhesives other than to adhere stiffeners to the backs of the panels, special inspections are required in accordance with IBC Section 1704.2.5, or the fabricator must be approved by the code official in accordance with IBC Section 1704.2.5.1, as such operations are outside the scope of this report.
- 5.4 Where Alfrex MCM panels are installed on exterior walls of Types I, II, III or IV construction, Alfrex MCM systems must be installed as specified in Section 4.5 of this report.
- 5.5 Installation of Alfrex MCM systems onto a fire-resistance-rated exterior wall must comply with Section 4.4 of this report. Alternatively, MCM systems may be installed on the outer surface of a fire-resistance-rated exterior wall in a manner such that the attachments do not penetrate through the entire exterior wall assembly.
- 5.6 Evidence of weather protection of the wall cladding system must be submitted to the code official in accordance with IBC Section 1406.6.
- 5.7 The Alfrex panels are manufactured under a quality control program with inspections conducted by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Metal Composite Material \(MCM\) \(AC25\)](#), dated October 2010 (editorially revised March 2021). Including NFPA 285.

## 7.0 IDENTIFICATION

- 7.1 Labeling includes product name, product identification information, thickness, flame-spread and smoke-developed indices, manufacture date and time, and ICC-ES ESR number (ESR-4566).
- 7.2 The report holder's contact information is the following:

**ALFREX, INC.**  
**943 GAINSVILLE HIGHWAY**  
**BUILDING 100, SUITE #4000**  
**BUFORD, GEORGIA 30518**  
**(470) 589-7449**  
[www.alfrexusa.com](http://www.alfrexusa.com)  
[john@alfrexusa.com](mailto:john@alfrexusa.com)

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION  
Section: 07 42 43—Composite Wall Panels

**REPORT HOLDER:**

ALFREX, INC.

**EVALUATION SUBJECT:**

ALFREX FR COMPOSITE PANELS

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Alfrex FR composite panels, described in ICC-ES evaluation report [ESR-4566](#), have also been evaluated for compliance with the code noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code edition:**2020 City of Los Angeles Building Code ([LABC](#))**2.0 CONCLUSIONS**

The Alfrex FR composite panels, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4566](#), comply with LABC Chapters 7, 8 and 14 and are subject to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Alfrex FR composite panels described in this evaluation report supplement must comply with the following conditions:

- All applicable sections in the evaluation report [ESR-4566](#).
- The design, installation, conditions of use and identification of the Alfrex FR composite panels are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-4566](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 7, 8, 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued April 2025.

**DIVISION:** 07 00 00—THERMAL AND MOISTURE PROTECTION  
**Section:** 07 42 43—Composite Wall Panels

**REPORT HOLDER:**

ALFREX, INC.

**EVALUATION SUBJECT:**

ALFREX FR COMPOSITE PANELS

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Alfrex FR composite panels, described in ICC-ES evaluation report ESR-4566, have also been evaluated for compliance with the code noted below.

**Applicable code edition:**

2022 and 2019 California Building Code® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

**2.0 CONCLUSIONS****2.1 CBC:**

The Alfrex FR composite panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-4566, comply with CBC Chapters 7, 8 and 14, provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 7, 8, 16 and 17, as applicable.

**2.1.1 OSHPD:**

The Alfrex FR composite panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-4566, comply with CBC Chapters 7, 8 and 14 [OSHPD 1, 1R, 2, 4 and 5], provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 7, 8, 16 and 17, as applicable.

**2.1.2 DSA:**

The Alfrex FR composite panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-4566, comply with CBC Chapters 7, 8 and 14 [DSA-SS and DSA-SS/CC], provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 7, 8, 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued April 2025.





LISTING INFORMATION OF  
**Alfrex - Aluminum Composite Panels**  
SPEC ID: 36858

Alfrex, Inc  
943 GAINESVILLE HWY  
BUILDING 100, Suite 4000  
Buford, GA 30518  
United States

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

## LISTING INFORMATION

ALFREX ACM is an Aluminum Composite Panel that has a surfaced finish on the aluminum skin.

### RATINGS

| Standard                                   | Rating   | Design Number   |
|--|--|---|
| ASTM E84 (4mm panel exterior side exposed) | Flame Spread Index:0<br>Smoke Developed Index:0            | NA  |
| ASTM E84 (Core Exposed)                    | Flame Spread Index:20<br>Smoke Developed Index:55          | NA  |
| NFPA 285 (4mm ACM)                         | Met Criteria of Standard                                   | UCL/MCMWP 30-01<br>UCL/MCMWP 30-03<br>UCL/MCMWP 30-04 |
| ASTM E119                                  | Fire Resistance Rating: 2hr                                | UCL/MCMWP 120-01                                      |
| CAN/ULC S102                               | Flame Spread Index: 0<br>Smoke Developed Classification: 5 | NA  |
| CAN/ULC S134 (4mm ACM)                     | Met Criteria of Standard                                   | UCL/MCMWP 25-01<br>UCL/MCMWP 25-02                    |

### Attribute

### Value

|  |   |
|--|---|
| Certificate Date of Expiry               | December 31, 2025                                       |
| Certificate Date of Initial Registration | January 7, 2022   |
| Certificate Number                       | WHI22-32958101  |
| Criteria                                 | NFPA 285 (2012)   |
| Criteria                                 | ASTM E84 (2013a)  |
| Criteria                                 | ASTM E119 (2012a)                                       |
| Criteria                                 | CAN / ULC S134 (2013) (R2018)                           |
| Criteria                                 | NFPA 285 (2019)   |
| Criteria                                 | CAN / ULC S102 (2018)                                   |
| Criteria                                 | NFPA 285 (2022) Ed.2023                                 |
| CSI Code                                 | 07 42 13 Metal Wall Panels                              |
| Listing Section                          | BUILDING MATERIALS WITH SURFACE BURNING CHARACTERISTICS |
| Listing Section                          | WALL ASSEMBLIES   |
| Spec ID                                  | 36858   |



## DRAWING INDEX

UCL/MCMWP 120-01

UCL/MCMWP 25-01

UCL/MCMWP 25-02

UCL/MCMWP 30-01

UCL/MCMWP 30-03

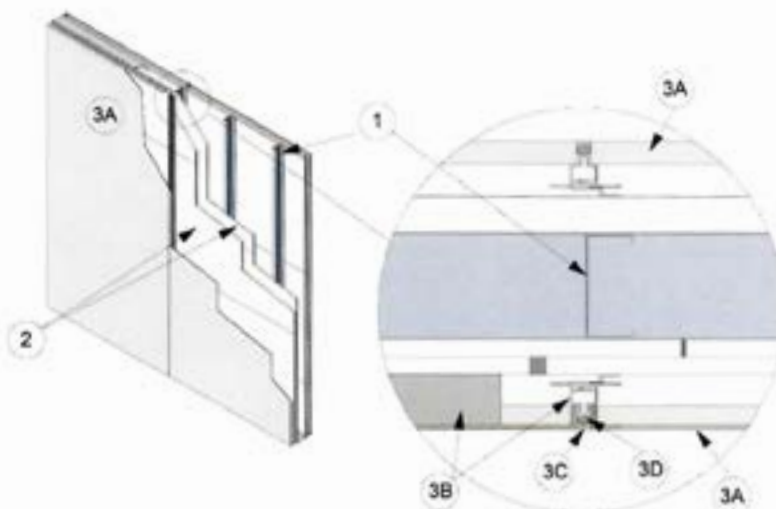
UCL/MCMWP 30-04

## UCL/MCMWP 120-01



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, LLC  
Design No. UCL/MCMWP 120-01  
Non-Load Bearing Wall Assembly  
ALFREX  
ASTM E119  
Rating: 2 Hour Fire Resistance



1. **STEEL FRAMING:** Install nominal 2-1/2 in. 25 GA steel studs spaced nominally 24 in. on center (oc), friction fit into 25 GA top and bottom steel tracks. Studs cut to be nominal 1/4 in. shorter than wall height.
2. **GYPSUM BOARD:** Apply two layers of 5/8 in. thick, Type X gypsum board to each side of the steel framing (Item 1) with the long dimension perpendicular to the steel studs. Secure base layer using #6 1-1/4 in. long, Type S screws spaced nominally 16 in. oc. Install face layer with joints offset min. 24 in. from the base layer joints. Secure face layer using #6 1-5/8 in. long, Type S screws spaced nominally 16 in. oc and offset 8 in. from the base layer screws.

A. **JOINT TAPE AND COMPOUND (Not Shown) –**  
Apply a level 2 finish of vinyl or casein, dry or premixed, joint compound applied in two coats to all exposed fastener heads and gypsum board joints. Embed min. 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board (Item 3).

3. **CERTIFIED MANUFACTURER:** Alfred, LLC

**CERTIFIED PRODUCT:** Aluminum Composite Panels

**MODEL:** ALFREX 4mm Panel

Date Revised: January 4, 2022

Page 1 of 2

Spec ID: 36858

Version: 9 June 2021

1PT-BC-CP-136

## UCL/MCMWP 120-01 (2 OF 2)



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

**EXTERIOR VENEER:** Install aluminum composite panels using the following elements:

- A. **ALUMINUM COMPOSITE PANELS** – Secure aluminum composite panels to aluminum extrusions (Item 5B) with #12 x 3/4 in. long self-drilling hex-head steel screws 24 in. oc. Where applicable secure aluminum composite panel to aluminum angles (Item 5A).
- B. **ALUMINUM EXTRUSIONS** – Install aluminum extrusion to aluminum composite panels (Item 5A) prior to installation onto wall. Secure aluminum extrusion through the gypsum board (Item 2) into the steel framing (Item 1) using #12 x 3 in. long self-drilling TEK screws.

- C. **BACKER ROD** – Install nominal 7/8 in. diameter foam backer rod compressed into joints between the aluminum composite panels (Item 5B). Install backer rod imbedded into the joint so that a min. 1/4 in. space is remaining between the backer rod and the exterior face of the aluminum composite panels (Item 5B).

- D. **SEALANT** – Install a min. 1/4 in. thick bead of Dow Corning® 795 Silicone Building Sealant into joints between aluminum composite panels (Item 5B) over the backer rod. Sealant installed to be flush with the exterior surface of the aluminum composite panels (Item 5B).

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Date Revised: January 4, 2022

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Spec ID: 36858

Version: 02 June 2022

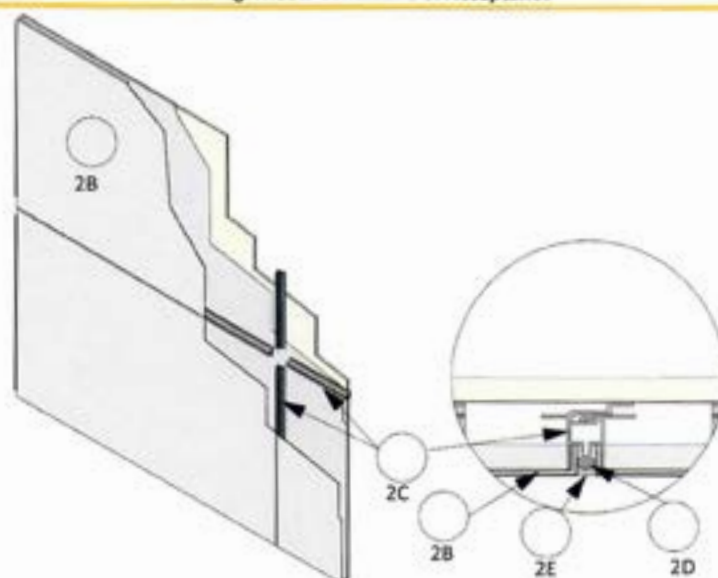
SFT-80-CP-126

## UCL/MCMWP 25-01



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, LLC  
Design No. UCL/MCMWP 25-01  
Exterior Wall Systems  
ALFRED  
CAN/ULC S134  
Rating: Meets Conditions of Acceptance



1. **NON-COMBUSTIBLE WALL ASSEMBLY** (Not Shown): ALFRED Aluminum Composite (ACM) Panels (Item 2) are to be installed on non-combustible, non-loadbearing wall assemblies as established by the applicable Code and criteria.

2. **CERTIFIED MANUFACTURER:** Alfred, LLC

**CERTIFIED PRODUCT:** Aluminum Composite Panels

**CERTIFIED MODEL:** ALFRED 4 mm Panel

**EXTERIOR VENEER:** Install aluminum composite panels using the following elements:

A. **ALUMINUM ANGLES** (Not Shown) – Where applicable (such as opening for windows and wall perimeters) install "L" shaped aluminum angle secured into the supporting construction of Item 1 using approved fasteners and methods.

B. **ALUMINUM COMPOSITE PANELS** – Secure aluminum composite panels to aluminum extrusions (Item 5C) with #12 x 3/4 in. long self-drilling hex-head steel screws min. 24 in. on center (oc). Where applicable secure aluminum composite panel to aluminum angles (Item 2A).

Date Revised: January 4, 2022

Page 1 of 2

Spec ID: 36858

Version: 9 June 2021

3FT-BC-CP-2B

## UCL/MCMWP 25-01 (2 OF 2)



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

- C. ALUMINUM EXTRUSIONS – Install aluminum extrusion to aluminum composite panels (Item 2B) prior to installation onto wall. Secure aluminum extrusion into the supporting construction of Item 1 using approved fasteners and methods.
- D. BACKER ROD – Install nominal 7/8 in. diameter foam backer rod compressed into joints between the aluminum composite panels (Item 2B). Install backer rod

imbedded into the joint so that a min. 1/4 in. space is remaining between the backer rod and the exterior face of the aluminum composite panels (Item 2B).

- E. SEALANT – Install a min. 1/4 in. thick bead of Dow Corning® 795 Silicone Building Sealant into joints between aluminum composite panels (Item 2B) over the backer rod. Sealant installed to be flush with the exterior surface of the aluminum composite panels.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Date Revised: January 4, 2022

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Spec ID: 36858

Version: 06 June 2021

SP-BC-QP-136



## UCL/MCMWP 25-02



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, Inc.  
Design No. UCL/MCMWP 25-02  
Exterior Wall Systems  
4 mm Alfred ACM Panels  
CAN/ULC S134  
Rating: Meets Conditions of Acceptance

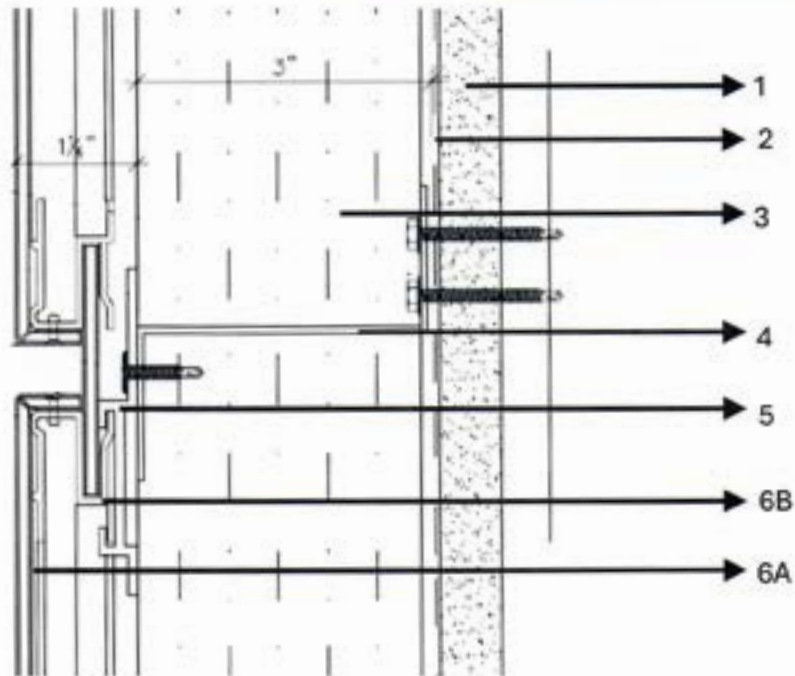


Figure 1 – Wall Assembly

Date Revised: October 9, 2024

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Spec ID: 36858

Version: 9 June 2021

WFT-SC-OP-10

## UCL/MCMWP 25-02 (2 OF 3)



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

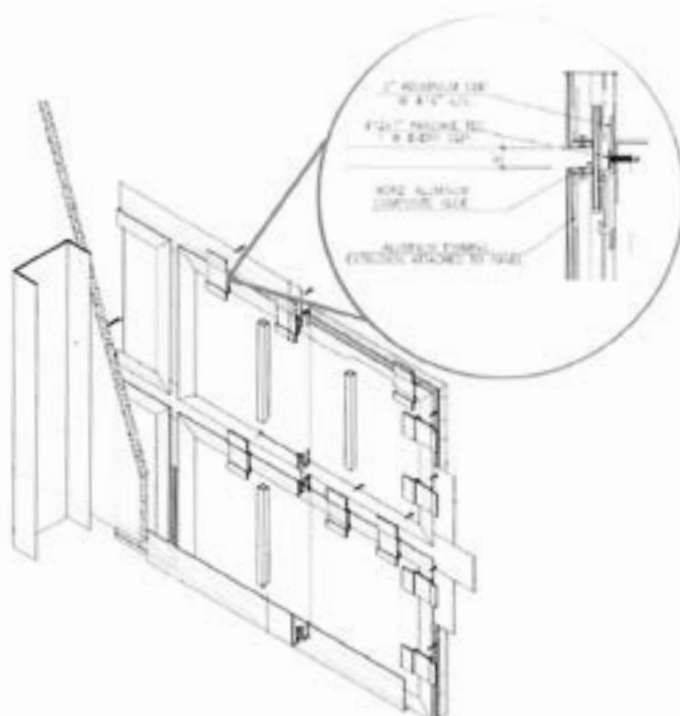


Figure 2 – ACM Attachment Details

- 1. SUPPORTING WALL CONSTRUCTION:** Install nominal 2 x 6 in. 20 GA galvanized steel studs spaced 24 in. on center (oc). Attach the steel framing to 20 GA top and bottom steel tracks using #8 x 1/2 in. long pan-head framing screws. Install 4 ft. x 8 ft. x 5/8 in. thick DensGlass® Gold Exterior Sheathing perpendicular to the studs. Sheathing is secured with #6 x 1-1/4 in. long self-drill zinc-plated screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

**INTERIOR SHEATHING (Not Shown):** Install one layer of 4 ft. x 10 ft. x 1/2 in. thick, Type X gypsum board with the long dimension perpendicular to the studs.

Sheathing is fastened to the framing with #6 x 1-1/4 in. long self-drill zinc-plated screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

- 2. WEATHER BARRIER:** Adhere a layer of VaproShield® WrapShield SA Self-Adhered Vapor Permeable Air Barrier oriented vertically.
- 3. INSULATION:** Install nominal 3 in. thick mineral wool insulation between the weather barrier and the ACM panels using 3 in. long insulation pins distributed one at each corner, and one in the middle of each 4 x 8 in. insulation board. The density of the insulation is 6.2 pcf.

Date Revised: October 9, 2024

Page 2 of 3

Spec ID: 36858

Version: 02 June 2021

075-BC-CP-19

## UCL/MCMWP 25-02 (3 OF 3)



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

4. **Z-GIRTS:** 3 x 3 x 3 in. 18 GA galvanized steel Z-girts installed horizontally at every horizontal panel joint and mid-span for panels over 48 in. in height. Z-girts are secured to the studs with #14 x 1-1/2 in. type "A" screws with two screws at each stud.

5. **WALL CLIPS:** Pre-install 2 in. x 3 in. aluminum wall clips to the top and left edge of each panel by clipping the wall clip into the pre-installed aluminum extrusion spacing the clips 24 in. oc.

6. **EXTERIOR CLADDING SYSTEM:**

**CERTIFIED PRODUCT:** 4mm Alfrex Aluminum Composite Panels – Installed with CMPS-CP Attachment System

Install the panels using the following Extrusion System components:

A. **COMPOSITE PANEL** – Secure the 4mm Alfrex ACM panels to the Z-girts by fastening the pre-installed clips to the Z-girts using #12 x 1 in. pancake tec fasteners with one fastener per clip. Install the next layer of panels by attaching the bottom profile of the pre-installed aluminum extrusion to the top mating edge of the wall clips. The panels are installed in a manner to leave a 1/2 in. reveal between panel edges, vertically and horizontally. An ACM spline is friction fitted into the gap.

B. **PRE-INSTALLED ALUMINUM EXTRUSIONS** – Aluminum extrusions are secured into the panel edge using countersink aluminum rivets along the perimeter of the panels.

7. **WINDOW OPENING (Not Shown):** Install 18 GA aluminum L-flashing spanning the wall thickness of 11 in. with a 2 in. vertical leg containing a 1/2 in. drip edge. Flashing is installed around the window opening sill, jambs, and header.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Date Revised: October 9, 2024

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Spec ID: 36858

Version: 03 June 2021

SFT-SC-CP-316

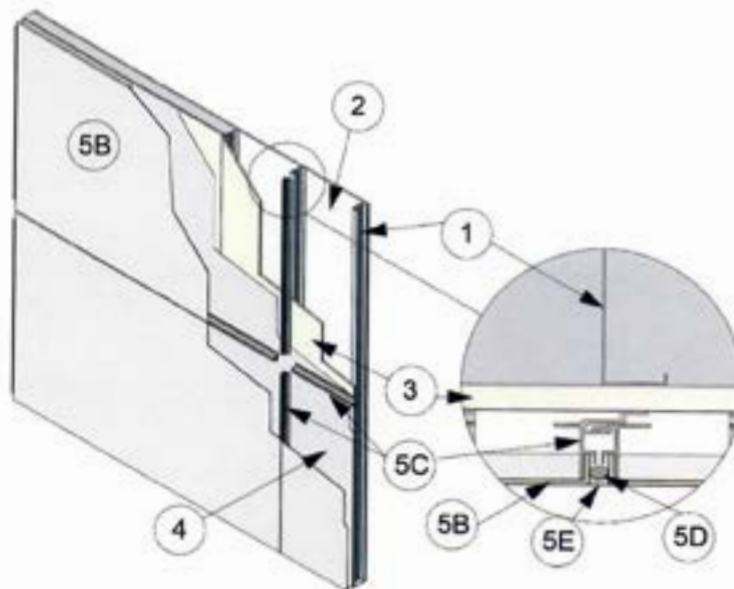


## UCL/MCMWP 30-01



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, LLC  
Design No. UCL/MCMWP 30-01  
Exterior Wall Systems  
ALFREX  
NFPA 285  
Rating: Meets Conditions of Acceptance



1. **STEEL FRAMING:** Install nominal 3-5/8 in. 20 GA steel studs spaced nominally 24 in. on center (oc). Attach steel studs to 20 GA top and bottom steel tracks using nominal 7/16 in. long pan-head framing screws attached to front and back of each steel stud. Nominal 1-1/2 in. x 1/2 in., 16 GA lateral bracing installed in the knockouts of the steel studs spaced 48 in. oc vertically up the wall. Nominal 4 in. thick, 4 pound per cubic foot (pcf) density mineral fiber insulation installed at the floor line for firestopping.
2. **INTERIOR GYPSUM:** Apply one layer of 5/8 in. thick, Type X gypsum board to the interior side

of the steel framing (Item 2) with the long dimension parallel to the steel studs. Secure using #6 1-1/4 in. long, Type 5 screws spaced nominally 8 in. oc around the perimeter and 12 in. oc in the field.

- A. **JOINT TAPE AND COMPOUND (Not Shown) –** Apply a level 2 finish of vinyl or casein, dry or premixed, joint compound applied in two coats to all exposed fastener heads and gypsum board joints. Embed min. 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board (Item 3).

Date Revised: January 4, 2022

Page 1 of 2

Spec ID: 36858

Version: 0 June 2021

SIT-EC-CP-18

## UCL/MCMWP 30-01 (2 OF 2)



Division 7 – Thermal and Moisture Protection  
07 42 00 Wall panels  
07 42 13.23 Metal Composite Material Wall Panels

3. **EXTERIOR SHEATHING:** Install 5/8 in. thick DensGlass® Gold exterior sheathing to the exterior side of the steel framing (Item 2) with the long dimension perpendicular to the steel studs. Secure using #6 1-1/4 in. long, Type 5 screws spaced nominally 8 in. oc around the perimeter and 12 in. oc in the field.

4. **WEATHER BARRIER:** Install a single layer of DuPont™ Tyvek® vapor barrier to the exterior side of the exterior sheathing (Item 3) with min. 6 in. overlaps at the seams and attached with staples spaced 24 in. oc.

5. **CERTIFIED MANUFACTURER:** Alfrex, LLC

**CERTIFIED PRODUCT:** Aluminum Composite Panels

**MODEL:** ALFREX 4mm Panel

**EXTERIOR VENEER:** Install aluminum composite panels using the following elements:

A. **ALUMINUM ANGLES (Not Shown)** – Where applicable (such as opening for windows and wall perimeters) install "L" shaped aluminum angles secured through the exterior sheathing (Item 3) into the steel framing (Item 1). Secure aluminum composite panels (Item 5B) to aluminum angles using #12 x 3/4 in. long self-drilling screws spaced max. 24 in. oc.

B. **ALUMINUM COMPOSITE PANELS** – Secure aluminum composite panels to aluminum

extrusions (Item 5C) with #12 x 3/4 in. long self-drilling hex-head steel screws 24 in. oc. Where applicable secure aluminum composite panel to aluminum angles (Item 5A).

C. **ALUMINUM EXTRUSIONS** – Install aluminum extrusion to aluminum composite panels (Item 5B) prior to installation onto wall. Secure aluminum extrusion through the exterior sheathing (Item 3) into the steel framing (Item 1) using #12 x 1-1/2 in. long self-drilling TEK screws.

D. **BACKER ROD** – Install nominal 7/8 in. diameter foam backer rod compressed into joints between the aluminum composite panels (Item 5B). Install backer rod imbedded into the joint so that a min. 1/4 in. space is remaining between the backer rod and the exterior face of the aluminum composite panels (Item 5B).

E. **SEALANT** – Install a min. 1/4 in. thick bead of Dow Corning® 795 Silicone Building Sealant into joints between aluminum composite panels (Item 5B) over the backer rod. Sealant installed to be flush with the exterior surface of the aluminum composite panels (Item 5B).

6. **FLASHING (Not Shown):** Where applicable, min. 0.04 in. thick aluminum flashing shall be installed in openings spanning from the interior to the exterior side of the window opening.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Date Revised: January 4, 2022

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Spec ID: 36858

Version: 09 June 2021

UCL-MCMWP-30-01

## UCL/MCMWP 30-03



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, Inc.  
Design No. UCL/MCMWP 30-03  
Exterior Wall Systems  
4 mm Alfred ACM Panels  
NFPA 285  
Rating: Meets Conditions of Acceptance

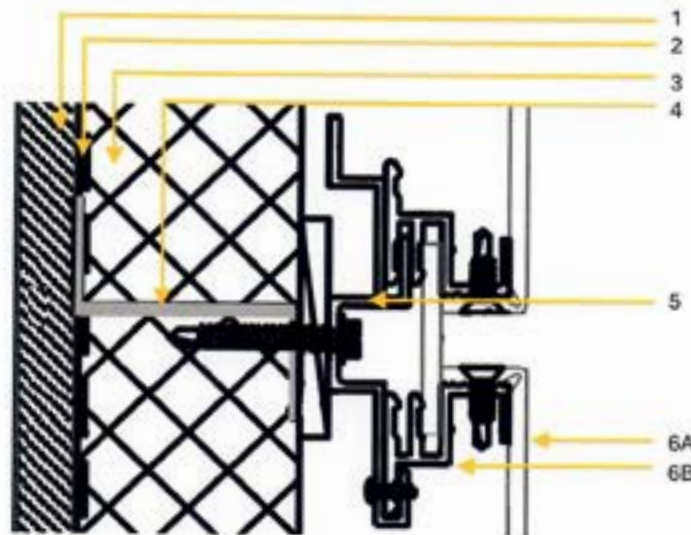


Figure 1 – Wall Assembly

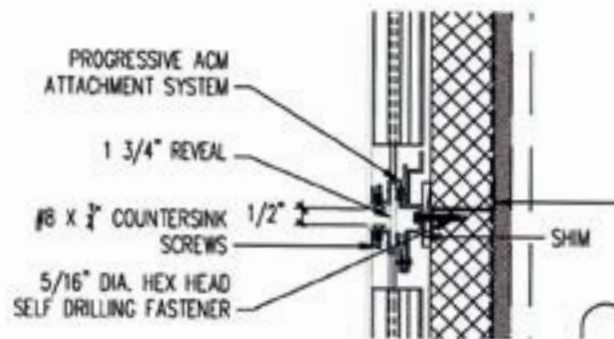


Figure 2 – ACM Attachment Details

Date Revised: October 9, 2024

Page 1 of 2

Spec ID: 36858

Version: 9 June 2021

SPT-SC-CP-131



## UCL/MCMWP 30-03 (2 OF 2)



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

1. **SUPPORTING WALL CONSTRUCTION:** Install nominal 2 x 6 in. 20 GA galvanized steel studs spaced 24 in. on center (oc). Attach the steel framing to 20 GA top and bottom steel tracks using #8 x 1/2 in. long pan-head framing screws. Install 4 ft. x 8 ft. x 5/8 in. thick DensGlass® Gold Exterior Sheathing perpendicular to the studs. Sheathing is secured with #6 x 1-1/4 in. long self-drill zinc-plated screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

**INTERIOR SHEATHING (Not Shown):** Install one layer of 4 ft. x 10 ft. x 5/8 in. thick, Type X gypsum board with the long dimension perpendicular to the studs. Sheathing is fastened to the framing with #6 x 1/4 in. long self-drill zinc-plated screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

2. **WEATHER BARRIER:** Apply a layer of VaproShield® WrapShield SA Self-Adhered Vapor Permeable Air Barrier oriented horizontally. Staple the seams at 24 in. oc spacing.
3. **INSULATION:** Install nominal 3 in. thick mineral wool insulation between the weather barrier and the ACM panels. The insulation is friction fitted between the Z-girts. The density of the insulation is 6.2 pcf.
4. **Z-GIRTS:** 3 in. wide 18 GA galvanized steel Z-girts installed horizontally. Z-girts are spaced nominal 24 in. oc. Z-girts are secured to the studs with 2-1/4 in. long, 5/16 in. diameter hex-head self-drilling screws spaced 24 in. oc.
5. **WALL CLIPS:** Pre-install 2 in. x 3 in. aluminum wall clips to the perimeter of the top edge of each

panel using 2-1/4 in. long, 5/16 in. diameter, hex drilling fasteners per clip. Clips are spaced at 24 in. oc around the perimeter of the panel. Clips are provided by the manufacturer with the ACM system.

#### 6. EXTERIOR CLADDING SYSTEM:

**CERTIFIED PRODUCT:** 4mm Alfrex Aluminum Composite Panels – Installed with Progressive ACM Attachment System

Install the panels using the following Extrusion System components:

- A. **COMPOSITE PANEL** – Secure the 4mm Alfrex ACM panels to the z-girts by fastening the pre-installed clips to the Z-girts using 2-1/4 in. long, 5/16 in. diameter, hex drilling fasteners. Install the next layer of panels by attaching the bottom profile of the pre-installed aluminum extrusion to the top mating edge of the wall clips. The panels are installed in a manner to leave a 1-3/4 in. reveal between panel edges, vertically and horizontally. An ACM spline is friction fitted into the gap.
  - B. **PRE-INSTALLED ALUMINUM EXTRUSIONS** – Aluminum extrusions are secured into the panel edge using #8 x 3/4 in. countersink screws along the perimeter of the panels.
7. **WINDOW OPENING (Not Shown):** Install 18 GA aluminum L-flashing spanning the wall thickness of 11-1/4 in. with a 2 in. return on the interior side of the wall. Flashing is installed around the window opening sill, jambs, and header.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Date Revised: October 9, 2024

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Spec ID: 36858

Version: 09 June 2021

BT-BC-CP-18

# UCL/MCMWP 30-04



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

Alfred, Inc.  
Design No. UCL/MCMWP 30-04  
Exterior Wall Systems  
4 mm Alfred ACM Panels  
NFPA 285  
Rating: Meets Conditions of Acceptance

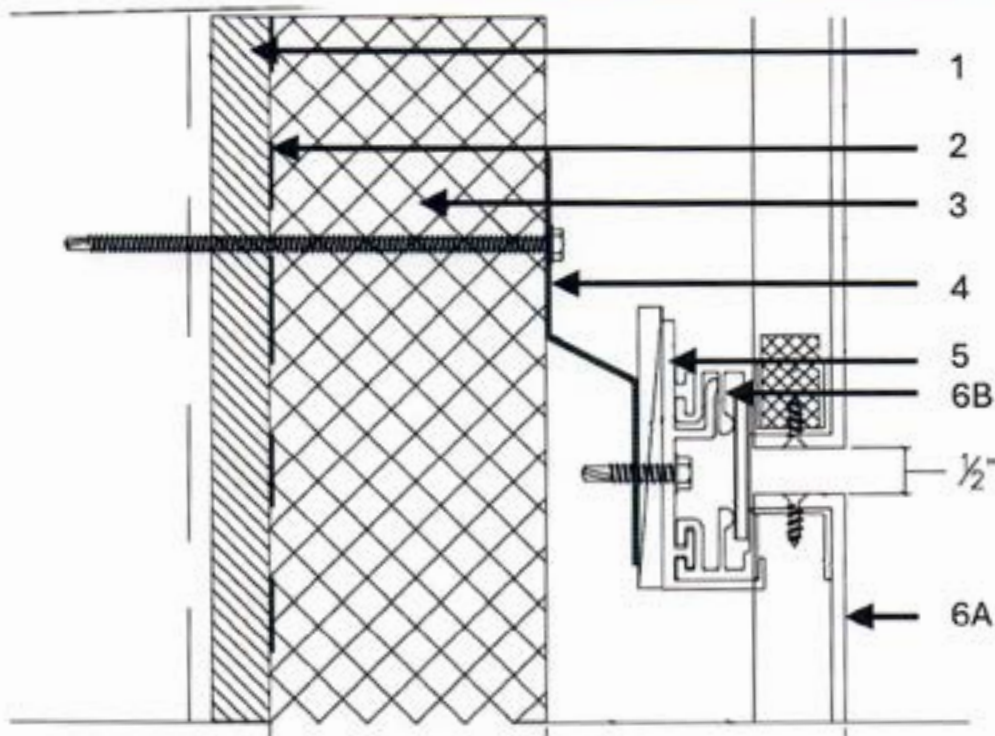


Figure 1 – Wall Assembly

Date Revised: October 9, 2024

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Spec ID: 36858

Version: 9 June 2021

371-02-01-10

## UCL/MCMWP 30-04 (2 OF 3)



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

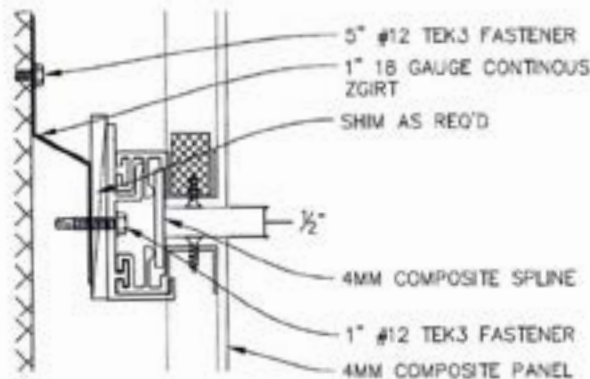


Figure 2 – ACM Attachment Details

- 1. SUPPORTING WALL CONSTRUCTION:** Install nominal 6 in. 18 GA steel studs spaced 24 in. on center (oc). Attach the steel framing to 18 GA top and bottom steel tracks using #6 x 1/2 in. long self-drilling screws. Install 4 ft. x 8 ft. x 5/8 in. thick DensGlass® Gold Exterior Sheathing perpendicular to the studs. Sheathing is secured with 1-5/8 in. long bugle-head self-tapping screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

**INTERIOR SHEATHING (Not Shown):** Install one layer of 4 ft. x 10 ft. x 5/8 in. thick, Type X gypsum board with the long dimension perpendicular to the studs. Sheathing is fastened to the framing with 1-5/8 in. long bugle-head self-tapping screws spaced 8 in. at the joints and perimeter and 12 in. in the field.

- 2. WEATHER BARRIER:** Apply a layer of VaproShield® Reveal Shield SA™ Self-Adhered Vapor Permeable Air Barrier oriented horizontally.

- 3. INSULATION:** Install nominal 3 in. thick Dupont Thermax™ Sheathing Polyiso Insulation panels between the weather barrier and the ACM panels. Secure the insulation using 5 in. long #12 Tek 3 fasteners and plastic washers spaced at 24 in. oc in the field.
- 4. Z-GIRTS:** 1 in. tall 18 GA galvanized steel Z-girts installed horizontally. Z-girts are spaced nominal 24 in. oc. Z-girts are secured with 5 in. long #12 Tek 3 fasteners.
- 5. WALL CLIPS:** Install 2 in. x 3 in. aluminum wall clips to the Z-girts using #12 x 1-1/4 in. self-drilling fasteners. Clips are installed to align with the top corners of each panel. Clips are installed using optional shims to level the exterior surface. Max. panel width is 83-1/4 in. Clips are provided by the manufacturer with the ACM system.

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UCL-MCMWP-30



## UCL/MCMWP 30-04 (3 OF 3)



Division 07 – Thermal and Moisture Protection  
07 42 00 Wall Panels  
07 42 13.23 Metal Composite Material Wall Panels

**6. EXTERIOR CLADDING SYSTEM:**

**CERTIFIED PRODUCT:** 4mm Alfrex Aluminum Composite Panels – Installed with Accu-Trac DS Rainscreen System

Install the panels using the following Extrusion System components:

- A. **COMPOSITE PANEL** – Secure the 4mm Alfrex ACM panels to the wall clips spaced through the pre-installed aluminum extrusion at the corner of each panel.

The panels are installed in a manner to leave a 1/2 in. gap between panel edges, vertically and horizontally.

- B. **PRE-INSTALLED ALUMINUM EXTRUSIONS** – Aluminum extrusions are riveted into the panel on each corner using #8 x 3/4 in. countersunk screws along the perimeter of the panels.

7. **WINDOW OPENING (Not Shown):** Install 18 GA aluminum closure trim around the perimeter of the window opening.

Consult the listing report on the Directory of Building Products (<https://bpdirectory.intertek.com/>) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

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SPT BC-GP-136

# Certificate of Compliance



This is a certificate of compliance to certify that the bearer has successfully completed the requirements of the above scheme which include the testing of products, the initial assessment, and are subject to continuing annual assessments of their compliance and testing of samples of products taken from production (as applicable to the scheme) and has been registered within the scheme for the products detailed.

You have been awarded:

## **Intertek ETL C + US Mark for Building Materials With Surface Burning Characteristics, Wall Assemblies**

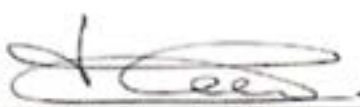
Standards: NFPA 285 (2012), ASTM E84 (2013a), ASTM E119 (2012a), CAN / ULC S134 (2013) (R2018), NFPA 285 (2019), CAN / ULC S102 (2018), NFPA 285 (2022) Ed.2023

Certificate number: WHI22-32958101

**Organization:** Alfrex, Inc  
943 GAINESVILLE HWY  
BUILDING 100, Suite 4000  
Buford, GA 30518  
United States

**Product:** Alfrex - Aluminum Composite Panels  
*Spec ID:* 36858  
*Listing Information:* See following page(s)

**Certification body:** Intertek Testing Services NA, Inc.  
**Initial registration:** January 7, 2022  
**Date of expiry:** December 31, 2025  
**Issue status:** 5

**Authorized By:**   
**Jean-Philippe Kayl, Director of Certification**

Intertek Testing Services NA, Inc.  
545 E. Algonquin Road, Ste H., Arlington Heights, IL 60005 USA  
Phone: 847-439-5667 Fax: 847-439-7320

[www.intertek.com](http://www.intertek.com)

The certificate and schedule are held in force by regular annual surveillance visits by Intertek Testing Services NA, Inc. and the holder or user should contact Intertek to validate its status. This certificate remains the property of Intertek Testing Services NA, Inc. and must be returned to them on demand. This Certificate is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage not caused by the use of this certificate. Only the Client is authorized to permit copying or distribution of this certificate and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of ensuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this regard.



## LISTING INFORMATION

ALFEX ACM is an Aluminum Composite Panel that has a surfaced finish on the aluminum skin.

### RATINGS

| Standard                                   | Rating   | Design Number   |
|--|--|---|
| ASTM E84 (4mm panel exterior side exposed) | Flame Spread Index:0<br>Smoke Developed Index:0            | NA  |
| ASTM E84 (Core Exposed)                    | Flame Spread Index:20<br>Smoke Developed Index:55          | NA  |
| NFPA 285 (4mm ACM)                         | Met Criteria of Standard                                   | UCL/MCMWP 30-01<br>UCL/MCMWP 30-03<br>UCL/MCMWP 30-04 |
| ASTM E119                                  | Fire Resistance Rating: 2hr                                | UCL/MCMWP 120-01                                      |
| CAN/ULC S102                               | Flame Spread Index: 0<br>Smoke Developed Classification: 5 | NA  |
| CAN/ULC S134 (4mm ACM)                     | Met Criteria of Standard                                   | UCL/MCMWP 25-01<br>UCL/MCMWP 25-02                    |

FLORIDA PRODUCT APPROVAL COMPLIANCE SUMMARY

Alfred FR Metal Composite Material - 4mm



Fire Resistant & Non-Combustible Cladding

| Florida Product Approval No.                    |                   | FL 15337  | FL 15337  | FL 15337                                |
|---|-------------------|---|---|---|
| System  |                   | Accu-Trac DS<br>Pressure Equalized<br>Rainscreen  | R-Trac HVHZ<br>Pressure Equalized<br>Rainscreen | Accu-Trac ES<br>Exposed Sealant         |
| Joint Condition                                 |                   | Rainscreen Spline   | Rainscreen Spline                               | Caulk Joint                             |
| HVHZ High Velocity Hurricane Zone               |                   | Approved  | Approved  | Approved                                |
| Design Pressure Rating                          |                   | + 75 / - 75 psf*  | + 120 / - 120 psf*                              | + 50 / - 50 psf**                       |
| Max Panel Size                                  |                   | 60" x 120"  | 59.25" x 143"                                   | 60" x 120"                              |
| ASTM E283<br>Air Infiltration                   | 1.57 psf (25 mph) | Pass  | Pass  | Pass                                    |
|   | 6.27 psf (50 mph) | Pass  | Pass  | Pass                                    |
| ASTM E330<br>Structural Performance             |                   | ± 75 psf, 20.0 psf<br>Water penetration   | ± 75 psf, 20.0 psf<br>Water penetration         | ± 50 psf, 15.0 psf<br>Water penetration |
| ASTM E331<br>Water Penetration                  |                   | 20 psf  | 18 psf  | 15 psf                                  |
| TAS 201 - ASTM E1996 & E 1886<br>Impact Testing |                   | Large Missile Impact Test, Level D, Wind Zone 4.<br>No signs of penetration, rupture, or opening.<br>Meets requirements of section 1626 of the Florida Building Code, Building. |   |   |
| TAS 202<br>Uniform Static Pressure              |                   | No signs of penetration, rupture, or opening.<br>Meets requirements of section 1620 of the Florida Building Code, Building.   |   |   |
| TAS 203<br>Cyclic Wind Pressure Loading         |                   | No signs of penetration, rupture, or opening.<br>Meets requirements of section 1625 of the Florida Building Code, Building.   |   |   |
| Testing Protocols                               |                   | Florida Building Code<br>Miami - Dade County<br>ASTM Standards  |   |   |
| Testing Documents                               |                   | <a href="#">FLI5337_R5_08-03594A</a>  | <a href="#">FL 15337_II_08-01998D</a>           | <a href="#">FLI5337_II_08_02268C</a>    |
| Evaluation Report                               |                   | <a href="#">Report No.: 514689A</a>   | <a href="#">Report No.: 5127IID</a>             | <a href="#">Report No.: 513012C</a>     |

# ALFRED FR MCM WARRANTIES

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GENERAL PAINT FINISH WARRANTY (SAMPLE)



Alfred FR Aluminum Composite Material and Alfred Plate

Fire Resistant & Non-Combustible Cladding

This Sample Limited Warranty ("Limited Warranty") is a facsimile of the Limited Warranty to be provided by Alfred® Inc. ("Company") to the property owner ("Owner") which will relate to the ("Products") installed at the ("Property") at the ("Property Address") identified therein. The sample version of a Limited Warranty for a specific product and finish combination may be provided upon request.

|                                |               |  |                 |                            |              |          |  |
|--------------------------------|---------------|--|-----------------|----------------------------|--------------|----------|--|
| Property Name                  |               |  |                 | Property Owner             |              |          |  |
| Property Address               |               |  |                 |                            |              |          |  |
| City                           |               |  |                 | State or Province          |              | Zip Code |  |
| Date of Substantial Completion |               |  |                 | Warranty Commencement Date |              |          |  |
| Issuance Date                  |               |  |                 |                            |              |          |  |
| Customer Name                  |               |  |                 |                            |              |          |  |
| Customer Address               |               |  |                 |                            |              |          |  |
| City                           |               |  |                 | State or Province          |              | Zip Code |  |
| Product(s)                     | Alfred FR ACM |  | Alfred Plate    |                            |              |          |  |
| Finish(es)                     | 2 Coat Solid  |  | 2 Coat Mica     |                            | 3 Coat Solid |          |  |
|                                | Other         |  | 3 Coat Metallic |                            |              |          |  |
| Additional Descriptions        |               |  |                 |                            |              |          |  |

Warranty Number \_\_\_\_\_

The "Company" will provide warranty coverage subject to the definitions, terms, conditions, limitations, and remedies stated therein. All of the following conditions and additional conditions constitute material terms of the limited warranty and failure to satisfy any one or more are of the conditions and additional conditions by owner or their agents or representatives shall render the limited warranty null and void and release Alfred, Inc. from its obligations thereunder.

- Company will warrant that the painted finish on the Product(s) listed therein will retain their Film integrity, Color and Chalk, as defined in a number of years after the installation of the coil coated ACM or PLATE consistent with the tables attached to the specific warranty and per the location and environmental conditions detailed therein.
- The Warranty period starts on the Warranty Commencement Date as written in the issued Warranty and will be determined as either the date of substantial completion (default), or 6 months from the date of shipment as defined by the commercial invoice date.
- Film Integrity shall be defined as the absence of peeling, checking, chipping or cracking, except for such crazing or slight cracking as may occur on tightly roll formed edges or brake bends at the time of forming the pre-painted sheet.
- Color Change shall be defined as freedom from fade or change as warranted in ΔE units calculated in accordance with ASTM D2244-02, paragraph 6.2.2 CIE L\*a\*b\*, IOO Observer, specular included. Color Change is measured on an exposed painted surface that has been cleaned of surface soils and chalk and then compared to corresponding values measured on the original or unexposed coated surface.
- Chalk or Oxidation shall be defined as a numerical rating as warranted when measured in accordance with the standard procedures specified in ASTM D4214-98.
- Non-uniform color changes that result from unequal exposure to sunlight and/or the elements are not covered by the Limited Warranty.

# GENERAL PAINT FINISH WARRANTY (SAMPLE)

Alfred FR Aluminum Composite Material and Alfred Plate



Fire Resistant & Non-Combustible Cladding

7. Applications exposed to salt spray, or located within paint finish warranty specific distances of salt-water or industrial atmospheres, must be maintained by washing with fresh tap water (in accordance with AAMA 610.1-1979) at least annually and documentation of the maintenance provided upon request (Copy of 610.1 provided on request). It is acknowledged that fading or color changes may not be uniform if the surfaces are not equally exposed to the sun and elements.
8. The Limited Warranty will not extend to, or cover: (a) damage to the Product occasioned by improper storage of the coated metal prior to installation or moisture or other contamination detrimental to the Product because of improper packaging, handling, shipping, processing and/ or installation; or (b) damage to the Product which suffers from improper forming, fabrication, cut edge exposure, corrosion of the substrate or any other condition between the substrate and coating which causes coating degradation or delamination; or (c) Forming Product at temperatures below an ambient temperature of 60°F (16°C) which may adversely affect the appearance and performance of the finish coating; (d) any external contaminant or condition which causes coating degradation or delamination; (f) other exclusions included in the Limited Warranty for a specific paint finish – provided upon request.
9. The Limited Warranty will not extend to, or cover any failure caused by perforation processes which (a) may cause potential heat damage to the top paint layer, (b) leave exposed aluminum vulnerable to oxidation, paint degradation, or delamination, (c) are not specifically approved by Alfred prior to issuance of the warranty.
10. The Limited Warranty will not cover damage or failure of Product which damage or failure is attributable to acts of God, falling objects, external forces, explosions, fire, terrorism, or other such similar or dissimilar occurrences.
11. Owner's sole and exclusive remedy, and Alfred, Inc.'s liability under the Limited Warranty will be limited, at Alfred, Inc.'s option, to recoating or replacing the coil coated Product claimed to be defective. Under no circumstances will Alfred, Inc. be held liable for any incidental, special, punitive or consequential damages.
12. Alfred, Inc. shall be given a reasonable opportunity to inspect the Product claimed to be defective. If after inspection of the product, Alfred, Inc. determines that the claimed defect is covered by the warranty, Alfred, Inc. as its sole option, shall refinish, repair, or replace, the defective Product without charge to the owner.
13. Alfred, Inc. must approve any recoating of the metal substrate through submission of three (3) estimates that each includes the name of the coating products to be used, labor and material costs as well as any other costs associated with the work for refinishing or replacing the metal substrate. Alfred, Inc. reserves the right to approve or negotiate the contract for such recoating or replacement work if the initial estimate is unacceptable to Alfred, Inc.
14. All warranty work will be performed by Alfred, Inc. or by a company, customer, contractor, applicator, or distributor selected by Alfred, Inc. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration without written notice and agreement by a duly authorized officer of Alfred, Inc. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this warranty becoming null and void. As color variances may occur between replacement or refinished product in comparison with the originally installed product due to normal weathering and aging of the originally installed product, this condition will not be indicative of a defect in either the replacement product or the originally installed product.
15. The warranty for any refinished or replaced metal substrate shall be only for the remainder of the original warranty period applicable to the original coated metal substrate.
16. In no event will the original applicable warranty period set forth in the warranty table be extended by a warranty claim.
17. In the event of any subsequent failure of any recoated or replaced coil coated Product, the Owner shall first make any claims against the supplier of those replacement materials.
18. The applicable warranty period shall be limited to, and shall in no event extend beyond, the warranty period as set forth in the warranty table for the specific finish and product.
19. The Limited Warranty is given solely to the Owner and is non-transferable and non-assignable.
20. All claims must be submitted in writing to Alfred, Inc. in 943 Gainesville Hwy. Bldg. 100-4000, Buford, GA 30518. All claims must be accompanied by this certificate, fully completed and signed by the customer that furnished the product to the owner. In order to qualify for warranty coverage, all claims must be submitted within thirty days from the date the damage is first discovered or could have been discovered. No claims can be submitted 30 days after expiration of the warranty period.
21. In no event does Alfred, Inc. cover the cost of labor or sundry materials required to remove and/or replace any defective product.
22. Alfred, Inc. reserves the right to discontinue or modify its products lines and coating colors. If the original product or coating color is no longer available, Alfred, Inc. agrees to use commercially reasonable efforts to substitute a comparable product.
23. The warranty is subject to, enforced by, and construed according to the laws of the State of Georgia. Any legal action to enforce or construe any

GENERAL PAINT FINISH WARRANTY (SAMPLE)



Alfred FR Aluminum Composite Material and Alfred Plate

Fire Resistant & Non-Combustible Cladding

- portion of this warranty shall be brought in a Court of Company's choice in Georgia.
- 24. Any attempt to construe the warranty, be it by law or other legal means, that ultimately leads to any court of competent jurisdiction stating any provision herein as invalid or unenforceable the remainder of the provisions following shall come into effect. These provisions shall come into effect as though the prior provisions had not been contained herein.
  - 25. The United Nations Convention on Contracts for the International Sale of Goods is expressly disclaimed and does not apply to the sale of Seller products. Any and all disputes between the parties that may arise pursuant to the order will be heard and determined before an appropriate arbitrator, federal or state court located in Atlanta, Georgia. The owner hereto acknowledges such court has the jurisdiction to interpret and enforce the provisions herein and/ or an arbitrator's judgment, and the owner and the Customer waives any and all objections that they may have as to personal jurisdiction or venue in any of the above courts.
  - 26. Company has the right to termination of the warranty at any time if a (30) day notice is given to the Customer prior to Rights accruing to Customer are not lost prior to termination.
  - 27. All information hereto shall be adhered to by both parties and shall not extend beyond the directives made therein. No modification shall be made without the understanding, consent, and signing by both Customer and Company of a contract explicitly stating this or any warranty's subsequent modification.
  - 28. EXCEPT AS SET FORTH HEREIN, ALFREX, INC. MAKES NO OTHER EXPRESS WARRANTIES AND DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, WITH RESPECT TO ANY OF THE PRODUCTS.
  - 29. IT IS UNDERSTOOD AND AGREED THAT THE REMEDIES PROVIDED FOR HEREIN FOR THE FINISH OF THE PRODUCT DESCRIBED ARE EXCLUSIVE WHETHER FOR BREACH OF EXPRESS WARRANTIES OR OTHERWISE AND SHALL CONSTITUTE THE OWNER'S EXCLUSIVE REMEDY AND ALFREX, INC.'S EXCLUSIVE LIABILITY. IN NO EVENT SHALL ALFREX, INC. BE LIABLE FOR LABOR COSTS, DIRECT, INDIRECT, INCIDENTAL, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES FOR ANY BREACH OF ANY EXPRESS OR IMPLIED WARRANTIES IN CONNECTION WITH THE PRODUCT.
  - 30. THE WARRANTY IS THE ONLY EXPRESS WARRANTY EXTENDED BY ALFREX, INC. IN CONNECTION WITH THE PRODUCT, OTHER THAN ALFREX, INC.'S STANDARD COATING WARRANTY, IF ANY, AND THE LIMITED WARRANTY SET OUT IN ALFREX, INC.'S SALES TERMS AND CONDITIONS, FOR THE PRODUCT, AND IT EXCLUDES ALL OTHER WARRANTIES, REPRESENTATIONS OR GUARANTEES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALFREX, INC.'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THE WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE PURCHASE PRICE.
  - 31. Owner is solely responsible for proper selection and installation of Alfred, Inc.'s products. Owner agrees that it will use Alfred, Inc. products only for their intended uses and according to the specifications and limitations established by Alfred, Inc. from time to time. Owner shall indemnify, defend and hold Alfred, Inc. harmless from and against any and all damages arising out of or relating to improper product selection, application, use, misuse, neglect, abuse of products or improper installation or incorporation of products.

Accepted By:  
Alfred, Inc.  
943 Gainesville Hwy.  
Building 100-4000  
Buford, GA 30518  
Phone: 470.589.7449

Authorized By \_\_\_\_\_

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

GENERAL PAINT FINISH WARRANTY (SAMPLE)

Alfred FR Aluminum Composite Material and Alfred Plate



Fire Resistant & Non-Combustible Cladding

WARRANTY TABLES

| WARRANTY                        | ALFREX FR MCM | ALFREX PLATE | TYPE    |
|---------------------------------|---------------|--------------|---------|
| 2 Coat Solid/ 2 Coat Mica       | 30 Years      | 20 Years     | Finish  |
| 3 Coat Metallic                 | 30 Years      | 20 Years     | Finish  |
| 3 Coat Vivid Solid              | 20 Years      | 20 Years     | Finish  |
| Design Series - Wood & Metal    | 20 Years      | 20 Years     | Finish  |
| Hairline Aluminum               | 10 Years      | N/A          | Finish  |
| Mirror                          | 10 Years      | N/A          | Finish  |
| Highly Durable Polyester 3-Coat | 20 Years      | N/A          | Finish  |
| Highly Durable Polyester        | 10 Years      | N/A          | Finish  |
| Perforation                     | N/A           | 10 Years     | Finish  |
| Bond Integrity                  | 10 Years      | N/A          | Product |

This limited warranty ("Limited Warranty") is provided by Alfrex® Inc. ("Company") to the property owner ("Owner") and relates to the ("Products") installed at the ("Property") at the ("Property Address") as identified below.

|                                |  |                            |          |
|--------------------------------|--|----------------------------|----------|
| Property Name                  |  | Property Owner             |          |
| Property Address               |  |                            |          |
| City                           |  | State or Province          | Zip Code |
| Date of Substantial Completion |  | Warranty Commencement Date |          |
| Issuance Date                  |  |                            |          |
| Customer Name                  |  |                            |          |
| Customer Address               |  |                            |          |
| City                           |  | State or Province          | Zip Code |
| Product(s)                     | <input type="checkbox"/> Alfrex FR Aluminum Composite Material |                            |          |
|                                | <input type="checkbox"/> Alfrex FR Zinc Composite Material     |                            |          |
| Finish(es)                     |  |                            |          |
| Additional Descriptions        |  |                            |          |
| Warranty Number                |  |                            |          |

The "Company" provides warranty coverage subject to the definitions, terms, conditions, limitations, and remedies stated herein. All of the following conditions and additional conditions constitute material terms of this limited warranty and failure to satisfy any one or more are of the conditions and additional conditions by owner or their agents or representatives shall render this limited warranty null and void and release Alfrex, Inc. from its obligations hereunder.

1. Company warrants that the Product(s) listed above will not exhibit any visually observable deformation as a result of delamination of the aluminum skin or natural metal skin from the core material due to manufacturing defects.
2. The Warranty period starts on the Warranty Commencement Date as written in the issued Warranty and will be determined as either the date of substantial completion (default), or 6 months from the date of shipment as defined by the commercial invoice date.
3. Should any panels show signs of delamination during the term of the warranty, at the sole discretion of Company, the portion of panels not conforming to this warranty shall be refunded at the purchase price or replaced at no cost to the Customer.
4. The applicable warranty period shall be limited to, and shall in no event extend beyond, the warranty period as set forth herein.
5. In no event will the original applicable warranty period set forth in the warranty table be extended by a warranty claim.
6. This Limited Warranty only pertains to delamination during normal use and service and in no way will cover any other forms of delamination including, but not limited to, mechanical abrasion or mechanical damages, faulty or improper fabrication or installation of the product, exposure to corrosive atmospheres such as, exposure to such as those containing salt spray, acid rain, harmful chemicals or vapors, improper storage, improper installation or mishandling during installation, improper cleaning, unreasonable use, misuse, physical abuse, accidental damage, vandalism, use of incompatible accessories, fire, flood, earthquake, lightning, ice, windstorms, other acts of God, wind borne objects, building settlement, structural failures, wall or foundation failure, use of harmful cleaning compounds, intermittent or continual submersion in water or any other liquid or solid material, deliberate damage, acts of terrorism, or any other physical damage.
7. This warranty does not cover weathering of any exposed core material due to UV radiation exposure.



8. Under no circumstances will Alfred, Inc. be held liable for any incidental, special, punitive, or consequential damages and shall not be responsible for the installation or maintenance of the Customer's panels.
9. In no event does Alfred Inc. cover the cost of labor or sundry materials required to remove and/or replace any defective product.
10. All claims must be submitted in writing to Alfred Inc. in 943 Gainesville Hwy. Bldg. 100-4000 Buford, GA 30518. All claims must be accompanied by this certificate, fully completed and signed by the customer that furnished the product to the owner. In order to qualify for warranty coverage, all claims must be submitted within (30) days from the date the damage is first discovered or could have been discovered. No claims can be submitted (30) days after expiration of the warranty period.
11. Alfred, Inc. shall be given a reasonable opportunity to inspect the product claimed to be defective. All warranty work will be performed by Alfred, Inc. or by a company, customer, contractor, applicator, or distributor selected by Alfred, Inc. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration without written notice and agreement by a duly authorized officer of Alfred, Inc. following the rules and regulations set herein, and the abiding of all maintenance of such panels of the industry standards to which the Customer belongs with respect to handling, delivering, storing, processing, treating, installing and maintaining. Any failure to satisfy the conditions contained herein or proceeding with such work undertaken by the claiming party or any other party shall be for the claiming party's own account, and shall be construed as a waiver by the Customer or Owner of any right they may have for enforcement of this warranty, and shall result in this warranty becoming null and void.
12. As color variances may occur between replacement or refinished product in comparison with the originally installed product due to normal weathering and aging of the originally installed product, this condition will not be indicative of a defect in either the replacement product or the originally installed product.
13. The warranty for any replaced Product(s) shall be only for the remainder of the original warranty period applicable to the Product(s).
14. This Limited Warranty is given solely to the Owner and is non-transferable and non-assignable.
15. Alfred Inc. reserves the right to discontinue or modify its products lines. If the original product is no longer available, Alfred Inc. agrees to use commercially reasonable efforts to substitute a comparable product.
16. This warranty is subject to, enforced by, and construed according to the laws of the State of Georgia. Any legal action to enforce or construe any portion of this warranty shall be brought in a Court of Company's choice in Georgia.
17. Any attempt to construe this warranty, be it by law or other legal means, that ultimately leads to any court of competent jurisdiction stating any provision herein as invalid or unenforceable the remainder of the provisions following shall come into effect. These provisions shall come into effect as though the prior provisions had not been contained herein.
18. The United Nations Convention on Contracts for the International Sale of Goods is expressly disclaimed and does not apply to the sale of Seller products. Any and all disputes between the parties that may arise pursuant to this order will be heard and determined before an appropriate arbitrator, federal or state court located in Atlanta, Georgia. The owner hereto acknowledges such court has the jurisdiction to interpret and enforce the provisions herein and/ or an arbitrator's judgment, and the owner and the Customer waives any and all objections that they may have as to personal jurisdiction or venue in any of the above courts.
19. Company has the right to termination of the warranty at any time if a (30) day notice is given to the Customer prior to Rights accruing to Customer are not lost prior to termination.
20. All information hereto shall be adhered to by both parties and shall not extend beyond the directives made herein. No modification shall be made without the understanding, consent, and signing by both Customer and Company of a contract explicitly stating this warranty's subsequent modification.
21. EXCEPT AS SET FORTH HEREIN, ALFREX, INC. MAKES NO OTHER EXPRESS WARRANTIES AND DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, WITH RESPECT TO ANY OF THE PRODUCTS.
22. IT IS UNDERSTOOD AND AGREED THAT THE REMEDIES PROVIDED FOR HEREIN FOR THE FINISH OF THE PRODUCT DESCRIBED ABOVE ARE EXCLUSIVE WHETHER FOR BREACH OF EXPRESS WARRANTIES OR OTHERWISE AND SHALL CONSTITUTE THE OWNER'S EXCLUSIVE REMEDY AND ALFREX, INC.'S EXCLUSIVE LIABILITY. IN NO EVENT SHALL ALFREX, INC. BE LIABLE FOR LABOR COSTS, DIRECT, INDIRECT, INCIDENTAL, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES FOR ANY BREACH OF ANY EXPRESS OR IMPLIED WARRANTIES IN CONNECTION WITH THE PRODUCT.
23. THIS WARRANTY IS THE ONLY EXPRESS WARRANTY EXTENDED BY ALFREX, INC. IN CONNECTION WITH THE PRODUCT, OTHER THAN ALFREX, INC.'S STANDARD COATING WARRANTY, IF ANY, AND THE LIMITED WARRANTY SET OUT IN ALFREX, INC.'S SALES TERMS AND CONDITIONS, FOR THE PRODUCT, AND IT EXCLUDES ALL OTHER WARRANTIES, REPRESENTATIONS OR GUARANTEES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALFREX, INC.'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE PURCHASE PRICE.

10 YEAR LIMITED WARRANTY AND REMEDY BOND INTEGRITY



Alfred FR Metal Composite Material

Fire Resistant & Non-Combustible Cladding

24. Owner is solely responsible for proper selection and installation of Alfred, Inc.'s products. Owner agrees that it will use Alfred, Inc. products only for their intended uses and according to the specifications and limitations established by Alfred, Inc. from time to time. Owner shall indemnify, defend and hold Alfred, Inc. harmless from and against any and all damages arising out of or relating to improper product selection, application, use, misuse, neglect, abuse of products or improper installation or incorporation of products.

Accepted By:  
Alfred, Inc.  
943 Gainesville Hwy.  
Building 100-4000  
Buford, GA 30518  
Phone: 470.589.7449

Authorized By \_\_\_\_\_

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

# ALFRED FR MCM PROJECT REFERENCES

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# GATEWAY MEADOWVALE

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|                        |                           |
|------------------------|---------------------------|
| Location               | Ontario, Canada           |
| Finish(es)             | Bone White                |
| Architect / Specifier  | Quadrangle Architects     |
| Installer / Contractor | Carttera Private Equities |
| Size                   | 16,041 sqft               |

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# HUTCHINSON METRO CENTER

## (TOWER II AND ATRIUM)

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|                               |               |
|-------------------------------|---------------|
| <b>Location</b>               | New York, USA |
| <b>Finish(es)</b>             | Bone White    |
| <b>Architect / Specifier</b>  | Newman Design |
| <b>Installer / Contractor</b> | McGowan       |
| <b>Size</b>                   | 140,485 sqft  |

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# SHOTWELL STADIUM



|                        |                                      |
|------------------------|--------------------------------------|
| Location               | Texas, USA                           |
| Finish(es)             | Anodic Clear Mica                    |
| Architect / Specifier  | Huckabee & Associates                |
| Installer / Contractor | AIS Architectural Image Systems, LLC |
| Size                   | 11,000 sqft                          |



# NORTH HILLS CREATIVE OFFICE



|                               |   |
|-------------------------------|---|
| <b>Location</b>               | North Carolina, USA                                   |
| <b>Finish(es)</b>             | Castle Gray, Graphite Metallic and Medium Bronze Mica |
| <b>Architect / Specifier</b>  | CI Design, Inc.                                       |
| <b>Installer / Contractor</b> | Advanced Exterior Systems                             |
| <b>Size</b>                   | 50,000 sqft   |



# RUTGERS UNIVERSITY

## (ATHLETIC PERFORMANCE CENTER)

---



|                        |                 |
|------------------------|-----------------|
| Location               | New Jersey, USA |
| Finish(es)             | Bone White      |
| Architect / Specifier  | Perkins Eastman |
| Installer / Contractor | Epic Management |
| Size                   | 17,018 sqft     |



# NORTH STATE BANK



|                               |  |
|-------------------------------|--|
| <b>Location</b>               | North Carolina, USA                    |
| <b>Finish(es)</b>             | Exotic Silver Mica, Medium Bronze Mica |
| <b>Architect / Specifier</b>  | New City Design                        |
| <b>Installer / Contractor</b> | Advanced Exterior Systems              |
| <b>Size</b>                   | -                                      |



# OVERLAND ONE B3

---



|                       |                      |
|-----------------------|----------------------|
| Location              | Kansas, USA          |
| Finish(es)            | Pewter Mica          |
| Architect / Specifier | Burns & McDonnell    |
| Fabricator            | Standard Sheet Metal |
| Size                  | 16,000 sqft          |



# PANERA BREAD



|                        |                                 |
|------------------------|---------------------------------|
| Location               | Florida, USA                    |
| Finish(es)             | Bronze                          |
| Architect / Specifier  | -                               |
| Installer / Contractor | Sundance Architectural Products |
| Size                   | 800 sqft                        |



# FENWICK TOWER / THE VUZE

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|                        |                        |
|------------------------|------------------------|
| Location               | Nova Scotia, Canada    |
| Finish(es)             | Black, Gray Silver     |
| Architect / Specifier  | Stantec Architecture   |
| Installer / Contractor | Templeton Construction |
| Size                   | 231,974 sqft           |



# HAT @ WEST VILLAGE



|                               |                 |
|-------------------------------|-----------------|
| <b>Location</b>               | Alberta, Canada |
| <b>Finish(es)</b>             | Custom          |
| <b>Architect / Specifier</b>  | NORR Architects |
| <b>Installer / Contractor</b> | Cidex Group     |
| <b>Size</b>                   | 140,485 sqft    |



# RED DEER JUSTICE CENTRE

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|                        |  |
|------------------------|--|
| Location               | Alberta, Canada                                    |
| Finish(es)             | West Pewter Mica II (custom) and JLR Gray Metallic |
| Architect / Specifier  | Group 2  |
| Installer / Contractor | Modern Cladding Finishes / Clark Builders          |
| Size                   | 56,000 sqft  |





|                        |                             |
|------------------------|-----------------------------|
| Location               | British Columbia, Canada    |
| Finish(es)             | Silver (custom)             |
| Architect / Specifier  | -                           |
| Installer / Contractor | Altium Building Corporation |
| Size                   | 253.17 sqft                 |



# CASADONA PLACE

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|                        |                       |
|------------------------|-----------------------|
| Location               | Alberta, Canada       |
| Finish(es)             | Bone White            |
| Architect / Specifier  | Gibbs Gage            |
| Installer / Contractor | EllisDon Design-Build |
| Size                   | 59,077 sqft           |



# SNC LAVALIN OFFICE

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|                               |                         |
|-------------------------------|-------------------------|
| <b>Location</b>               | Ontario, Canada         |
| <b>Finish(es)</b>             | Pure White, Ascot White |
| <b>Architect / Specifier</b>  | De Silva Architect      |
| <b>Installer / Contractor</b> | Arguson Projects, Inc.  |
| <b>Size</b>                   | 44,833 sqft             |



# THE WINDSOR

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|                        |                                    |
|------------------------|------------------------------------|
| Location               | Alberta, Canada                    |
| Finish(es)             | Black, Dark Gray, White            |
| Architect / Specifier  | NORR Architects                    |
| Installer / Contractor | Westpointe Building Services, Inc. |
| Size                   | 59,077 sqft                        |

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# HAT @ EAST VILLAGE

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|                               |   |
|-------------------------------|---|
| <b>Location</b>               | Alberta, Canada                               |
| <b>Finish(es)</b>             | Custom Wood, Bone White, Dark Gray, Dove Gray |
| <b>Architect / Specifier</b>  | NORR Architects                               |
| <b>Installer / Contractor</b> | Cidex Group                                   |
| <b>Size</b>                   | 34,395 sqft                                   |



# NCS MULTI-STAGE

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|                        |                                 |
|------------------------|---------------------------------|
| Location               | Alberta, Canada                 |
| Finish(es)             | Cherry Wood, Pure White, Silver |
| Architect / Specifier  | Genesis Building Corp.          |
| Installer / Contractor | ARTE Group                      |
| Size                   | 9,302 sqft                      |

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# DESA GLASS



|                               |                 |
|-------------------------------|-----------------|
| <b>Location</b>               | Alberta, Canada |
| <b>Finish(es)</b>             | Black           |
| <b>Architect / Specifier</b>  | -               |
| <b>Installer / Contractor</b> | ARTE Group      |
| <b>Size</b>                   | 7,427 sqft      |



# CANADIAN BLOOD SERVICES

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|                        |                   |
|------------------------|-------------------|
| Location               | Alberta, Canada   |
| Finish(es)             | Dark Gray         |
| Architect / Specifier  | NORR Architects   |
| Installer / Contractor | Bird Construction |
| Size                   | 5,908 sqft        |

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# MNP TOWER



|                        |                               |
|------------------------|-------------------------------|
| Location               | Alberta, Canada               |
| Finish(es)             | Dove Gray, Black, Cherry Wood |
| Architect / Specifier  | Kohn Pedersen Fox             |
| Installer / Contractor | ARTE Group                    |
| Size                   | 5,655 sqft                    |



# TEMPO AMENITY BUILDING



|                        |                          |
|------------------------|--------------------------|
| Location               | British Columbia, Canada |
| Finish(es)             | Gold                     |
| Architect / Specifier  | Ciccozzi Architecture    |
| Installer / Contractor | Cressey Development      |
| Size                   | 2,115 sqft               |



# ALFIE DENTAL OFFICE

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|                               |   |
|-------------------------------|---|
| <b>Location</b>               | Ontario, Canada                           |
| <b>Finish(es)</b>             | Black, Pure White                         |
| <b>Architect / Specifier</b>  | Vanessa Fong Architect                    |
| <b>Installer / Contractor</b> | Lincoln Stevens Construction & Design Ltd |
| <b>Size</b>                   | 2,026 sqft                                |

# 1400 BALTIMORE



|                        |                   |
|------------------------|-------------------|
| Location               | Missouri, USA     |
| Finish(es)             | Custom Gray White |
| Architect / Specifier  | Burns & McDonnell |
| Installer / Contractor | Flynn Midwest LP  |
| Size                   | 123,377 sqft      |



# AMAZON COUGAR FULFILLMENT CENTER

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|                              |                              |
|------------------------------|------------------------------|
| <b>Location</b>              | Detroit, USA                 |
| <b>Finish(es)</b>            | Amazon Prime Blue            |
| <b>Architect / Specifier</b> | Stantec Architecture         |
| <b>Fabricator</b>            | Riverside Group (Fabricator) |
| <b>Size</b>                  | 3,198 sqft                   |



# DAVENPORT

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|                        |                  |
|------------------------|------------------|
| Location               | Oklahoma, USA    |
| Finish(es)             | Bronze           |
| Architect / Specifier  | Lilly Architects |
| Installer / Contractor | Ventaire LLC     |
| Size                   | 16,878 sqft      |

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# PROVO CITY HALL



|                        |  |
|------------------------|--|
| Location               | Utah, USA  |
| Finish(es)             | Gray Metallic, Serpentine Metallic, Anodic Satin Metallic, Oyster, Beige |
| Architect / Specifier  | VCBO Architecture  |
| Installer / Contractor | LCG Facades  |
| Size                   | 82,084 sqft  |



# THE SMYTH

---



|                        |                                   |
|------------------------|-----------------------------------|
| Location               | Connecticut, USA                  |
| Finish(es)             | Dark Gray, Bronze                 |
| Architect / Specifier  | Lessard Design                    |
| Installer / Contractor | Alufab / Katerra / EC Contracting |
| Size                   | 97,200 sqft                       |

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# COLORADO CONVENTION CENTER

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|                               |  |
|-------------------------------|--|
| <b>Location</b>               | Colorado, USA                                  |
| <b>Finish(es)</b>             | Exotic Silver Mica and Classic White           |
| <b>Architect / Specifier</b>  | TVS Design                                     |
| <b>Installer / Contractor</b> | EWS Texas / Bosco Constructors & Hensel Phelps |
| <b>Size</b>                   | 51,000 sqft                                    |

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# 1122 W CHICAGO



|                        |  |
|------------------------|--|
| Location               | Illinois, USA                                |
| Finish(es)             | Ascot White, Black, Dark Gray, Classic White |
| Architect / Specifier  | Pappageorge Haymes                           |
| Installer / Contractor | Edon / Pappageorge Haymes                    |
| Size                   | 19,500 sqft                                  |



# ADVANCED ORTHO AND SPINE

---



|                        |                                     |
|------------------------|-------------------------------------|
| Location               | Tennessee, USA                      |
| Finish(es)             | Bright Silver Metallic              |
| Architect / Specifier  | Hayden Architecture & Interiors LLC |
| Installer / Contractor | Mathias Metal Systems, LLC / Fortis |
| Size                   | 12,000 sqft                         |



# AEQUITAS COMMUNITY JUSTICE CAMPUS

---



|                        |                      |
|------------------------|----------------------|
| Location               | Indiana, USA         |
| Finish(es)             | Dark Walnut          |
| Architect / Specifier  | CSO Architects, Inc. |
| Installer / Contractor | Division 7 Mtls      |
| Size                   | 31,800 sqft          |

# BOSTON SCIENTIFIC



|                        |                                 |
|------------------------|---------------------------------|
| Location               | Minnesota, USA                  |
| Finish(es)             | Exotic Silver Mica, Pewter Mica |
| Architect / Specifier  | HGA                             |
| Installer / Contractor | Division V Sheet Metal          |
| Size                   | 66,000 sqft                     |



# DFW EXPANSION



|                        |                               |
|------------------------|-------------------------------|
| Location               | Texas, USA                    |
| Finish(es)             | Pewter Mica                   |
| Architect / Specifier  | Corgan                        |
| Installer / Contractor | CTA Panel Systems / EWS Texas |
| Size                   | 25,000 sqft                   |

# FOUNDERS SCHOOL

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|                               |                                    |
|-------------------------------|------------------------------------|
| <b>Location</b>               | Arkansas, USA                      |
| <b>Finish(es)</b>             | Gray Silver Mica, Teak, Golden Oak |
| <b>Architect / Specifier</b>  | WDD Architects                     |
| <b>Installer / Contractor</b> | Ralph Jones Sheet Metal            |
| <b>Size</b>                   | 11,000 sqft                        |

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# HOTEL INDIGO

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|                        |                             |
|------------------------|-----------------------------|
| Location               | Minnesota, USA              |
| Finish(es)             | Black                       |
| Architect / Specifier  | RSP Architects              |
| Installer / Contractor | Division V Sheet Metal Inc. |
| Size                   | 2,200 sqft                  |

# ITAWAMBA COMMUNITY COLLEGE

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|                              |                             |
|------------------------------|-----------------------------|
| <b>Location</b>              | Mississippi, USA            |
| <b>Finish(es)</b>            | Anodic Clear Mica           |
| <b>Architect / Specifier</b> | Pryor Morrow Architects     |
| <b>Fabricator</b>            | E Cornell Malone Coporation |
| <b>Size</b>                  | 15,000 sqft                 |



# PARTNERS ANIMAL HOSPITAL WEST LOOP

---



|                       |   |
|-----------------------|---|
| Location              | Chicago, IL                                   |
| Finish(es)            | FR ACM Gray Silver Mica and Anodic Clear Mica |
| Architect / Specifier | Linden Group Architects                       |
| Fabricator            | NSS Exteriors                                 |
| Size                  | 80,00 sqft                                    |



# JIM BUTLER KIA



|                               |  |
|-------------------------------|--|
| <b>Location</b>               | Chesterfield, MO                                 |
| <b>Finish(es)</b>             | FR ACM Midnight Black and Bright Silver Metallic |
| <b>Architect / Specifier</b>  | Michael E Bower Architecture                     |
| <b>Installer / Contractor</b> | Architectural Sheet Metal, Inc                   |
| <b>Size</b>                   | 5,000sqft and 3,500sqft                          |



# THE POST

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|                        |                                 |
|------------------------|---------------------------------|
| Location               | Wisconsin, USA                  |
| Finish(es)             | Teak, Classic White             |
| Architect / Specifier  | Knothe & Bruce Architects, LLC  |
| Installer / Contractor | CMG / Krupp General Contractors |
| Size                   | 13,000 sqft                     |





|                               |                                       |
|-------------------------------|---------------------------------------|
| <b>Location</b>               | Iowa, USA                             |
| <b>Finish(es)</b>             | Dove Gray, Black                      |
| <b>Architect / Specifier</b>  | Aspect Architecture                   |
| <b>Installer / Contractor</b> | CR Glass / Metal Design Systems, Inc. |
| <b>Size</b>                   | 14,000 sqft                           |

# HUNTINGTON UNIVERSITY MERILLAT

---



|                        |  |
|------------------------|--|
| Location               | Indiana, USA                                   |
| Finish(es)             | Pewter Mica and Huntington Pine Green (custom) |
| Architect / Specifier  | Design Collaborative                           |
| Installer / Contractor | SPS Corporation                                |
| Size                   | -  |



# HUMBER RIVER LTC



|                        |                                    |
|------------------------|------------------------------------|
| Location               | Ontario, Canada                    |
| Finish(es)             | Bone White, Dark Gray, Sea Wolf    |
| Architect / Specifier  | Montgomery Sisam Architects        |
| Installer / Contractor | Triumph Aluminum & Sheet Metal inc |
| Size                   | -                                  |



# PARKWOD

---



|                        |                 |
|------------------------|-----------------|
| Location               | Indiana, USA    |
| Finish(es)             | Dark Gray       |
| Architect / Specifier  | DKGR Architects |
| Installer / Contractor | Division 7 Mtls |
| Size                   | 2,300 sqft      |

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# BALLY'S CASINO



|                        |   |
|------------------------|---|
| Location               | Missouri, USA                                       |
| Finish(es)             | Ascot White, Bronze, Copper Penny Mica, Pewter Mica |
| Architect / Specifier  | JCJ Architecture                                    |
| Installer / Contractor | Flynn Midwest LP                                    |
| Size                   | 50,000 sqft   |



# UConn STEM Research Center

---



|                        |                                   |
|------------------------|-----------------------------------|
| Location               | Connecticut, USA                  |
| Finish(es)             | Custom LITHIC 332 on natural zinc |
| Architect / Specifier  | Payette Architects                |
| Installer / Contractor | Greenwood Industries Inc.         |
| Size                   | 8,950 sqft                        |



# ORLANDO HEALTH JEWITT ORTHOPEDIC HOSPITAL

---



|                               |                                |
|-------------------------------|--------------------------------|
| <b>Location</b>               | Orlando, FL                    |
| <b>Finish(es)</b>             | Custom Alabaster               |
| <b>Architect / Specifier</b>  | EYP Architecture & Engineering |
| <b>Installer / Contractor</b> | NRG Cladding                   |
| <b>Size</b>                   | 80,000 sqft                    |



# MICHIGAN STADIUM SCOREBOARDS



|                        |                                |
|------------------------|--------------------------------|
| Location               | Ann Arbor, MI                  |
| Finish(es)             | Custom Michigan Blue and Maize |
| Architect / Specifier  | Smith Group JJR                |
| Installer / Contractor | -                              |
| Size                   | 37,000 sqft                    |





|                               |                                    |
|-------------------------------|------------------------------------|
| <b>Location</b>               | Middleton, WI                      |
| <b>Finish(es)</b>             | FR ACM Teak and Exotic Silver Mica |
| <b>Architect / Specifier</b>  | Knothe & Bruce Architects          |
| <b>Installer / Contractor</b> | -                                  |
| <b>Size</b>                   | 16,000sqft                         |



# TLA'AMIN WELLNESS CENTRE



|                        |  |
|------------------------|--|
| Location               | Tla'amin Nation - British Columbia, Canada |
| Finish(es)             | Bronze (JY-6I80)                           |
| Architect / Specifier  | Urban Arts Architecture Inc.               |
| Installer / Contractor | Converge Construction                      |
| Size                   | 11,898.33 sqft                             |



# THE SALLY



|                        |                 |
|------------------------|-----------------|
| Location               | Chicago, IL     |
| Finish(es)             | FR ACM Charcoal |
| Architect / Specifier  | Booth Hansen    |
| Installer / Contractor | -               |
| Size                   | 22,000sqft      |



# TOYOTA OF MANHATTAN

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|                        |                      |
|------------------------|----------------------|
| Location               | New York, NY         |
| Finish(es)             | FR ACM Fashion Gray  |
| Architect / Specifier  | SLCE Architects, LLP |
| Installer / Contractor | DK Metals            |
| Size                   | -                    |



# IZZO FAMILY MEDICAL CENTER



|                               |                                     |
|-------------------------------|-------------------------------------|
| <b>Location</b>               | Lansing, MI                         |
| <b>Finish(es)</b>             | ACM & Flat Sheet - Gray Silver Mica |
| <b>Architect / Specifier</b>  | Gresham Smith                       |
| <b>Installer / Contractor</b> | Architectural Metals, Inc           |
| <b>Size</b>                   | -                                   |

# SPARE TIME ENTERTAINMENT

---



|                        |                           |
|------------------------|---------------------------|
| Location               | Madison, WI               |
| Finish(es)             | ACM & Flat sheet - Bronze |
| Architect / Specifier  | -                         |
| Installer / Contractor | Coated Metals Group       |
| Size                   | 2,000sf                   |



# ONE COMMUNITY BANK

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|                               |                               |
|-------------------------------|-------------------------------|
| <b>Location</b>               | Cottage Grove, WI             |
| <b>Finish(es)</b>             | Anodic Clear Mica, Bone White |
| <b>Architect / Specifier</b>  | OPN Architects                |
| <b>Installer / Contractor</b> | Coated Metals Group           |
| <b>Size</b>                   | 3,000sf                       |

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# CONVERGENT SCIENCE HEADQUARTERS

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|                        |                      |
|------------------------|----------------------|
| Location               | Madison, WI          |
| Finish(es)             | Alfrex FR - Charcoal |
| Architect / Specifier  | -                    |
| Installer / Contractor | Coated Metals Group  |
| Size                   | 5,000sf              |

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# WINDROSE HEALTH NETWORK

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|                               |   |
|-------------------------------|---|
| <b>Location</b>               | Franklin, IN                                |
| <b>Finish(es)</b>             | Alfrex FR & Flat Sheet Bone White, Sea Wolf |
| <b>Architect / Specifier</b>  | DELV Design                                 |
| <b>Installer / Contractor</b> | Division 7 Mtls                             |
| <b>Size</b>                   | -   |

# FRED 310



|                        |                           |
|------------------------|---------------------------|
| Location               | Frederickson, WA          |
| Finish(es)             | ACM, Flat Sheet Dark Gray |
| Architect / Specifier  | NELSON                    |
| Installer / Contractor | Exterior Metals, Inc      |
| Size                   | -                         |



# TOWNER COUNTY MEDICAL CENTER

---



|                               |                           |
|-------------------------------|---------------------------|
| <b>Location</b>               | Cando, ND                 |
| <b>Finish(es)</b>             | ACM, Flat Sheet Dark Gray |
| <b>Architect / Specifier</b>  | Infusion Architects       |
| <b>Installer / Contractor</b> | MG McGrath                |
| <b>Size</b>                   | -                         |

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# NORTH AMERICAN PROJECT REFERENCES

*Alfred FR Metal Composite Material*

| PROJECT NAME   | LOCATION            | ARCHITECT                                  |
|--|---------------------|--|
| I400 Baltimore   | Missouri, USA       | Burns & McDonnell                          |
| I60I Sherman   | Illinois, USA       | Eckenhoff Saunders                         |
| 360 Oakville Place Drive                               | Ontario, Canada     | B+H Architects                             |
| 8 Court Square   | New York, USA       | Hill West Architects                       |
| 80I Church   | Tennessee, USA      | Goettsch Partners                          |
| A.O.S. Orthopedic Group                                | Tennessee, USA      | Hayden Architecture                        |
| Amazon Cougar - Fulfillment Center                     | Michigan, USA       | Stantec Architects & Engineering           |
| Arhaus Tysons Galleria                                 | Virginia, USA       | RDL Architects                             |
| Armour and Troost                                      | Missouri, USA       | Helix Architecture & Design                |
| Ascension St. Thomas Mid-State Medical Office Building | Tennessee, USA      | Catalyst Design Group                      |
| ATT Building Façade Renovation                         | Tennessee, USA      | EXP  |
| Axis at Legends Crossing Shopping Center               | Texas, USA          | Sterling Architects, LLC                   |
| Bally's Kansas City Welcome Center                     | Missouri, USA       | JCJ Architecture                           |
| Black Hawk Medical Center                              | Oklahoma, USA       | Studio 45 Architects                       |
| Boston Scientific Weaver Lake 4                        | Minnesota, USA      | HGA - Hammel Green and Abrahamson          |
| Cambria Hotel  | South Carolina, USA | Sand Architects                            |
| Canadian Blood Services - Calgary                      | Alberta, Canada     | Norr Architecture                          |
| Casadona Place   | Alberta, Canada     | Gibbs Gage                                 |
| CBHS Heffernan Field House                             | Tennessee, USA      | Fleming Architects                         |
| City of Las Vegas Courthouse                           | Nevada, USA         | PGAL LLC, Las Vegas /LVMC Development, LLC |
| Clemson University Memorial Stadium Renovations        | South Carolina, USA | LS3P                                       |
| Clifton Court Hall - University of Cincinnati          | Ohio, USA           | LMN Architects                             |
| Coaldale Civic Square                                  | Alberta, Canada     | FWBA Architects                            |
| Cochrane Station-Cochrane Transit Hub                  | Alberta, Canada     | GEC Architecture                           |
| Colorado Convention Center                             | Colorado, USA       | TVS  |
| Colquitt Regional Medical Center                       | Georgia, USA        | Thomas Miller & Partners                   |
| Connors  | Oklahoma, USA       | Oklahoma Roofing and Sheet Metal LLC / AMP |
| CRG - The Cubes @ River                                | Georgia, USA        | Lamar Johnson Collaborative                |

# NORTH AMERICAN PROJECT REFERENCES

*Alfred FR Metal Composite Material*

| PROJECT NAME                                | LOCATION            | ARCHITECT                          |
|---|---------------------|------------------------------------|
| CRG Inland Woods Chapel                     | South Carolina, USA | Lamar Johnson Collaborative        |
| Davenport Condominiums                      | Oklahoma, USA       | Ventaire                           |
| Desire Florida Center                       | Louisiana, USA      | Mathes Brierre Architects          |
| Douglas MacArthur Junior High School        | Arkansas, USA       | Cooper Mixon Architects            |
| Fairbourne Station Office Tower             | Utah, USA           | EDA Architects                     |
| Fenwick Tower / The Vuze                    | Nova Scotia, Canada | Stantec Architecture               |
| Florida Desire Multi Service Center         | Louisiana, USA      | Mathes Brierre Architects          |
| Founders Classical Academy                  | Arkansas, USA       | WDD Architects                     |
| Gateway Meadowvale                          | Ontario, Canada     | Quadrangle Architects              |
| Glendale Medical Office Building            | California, USA     | SWA Architects                     |
| Glenlake III                                | North Carolina, USA | Piedmont Land Design, LLP          |
| Gordon Flesch Company                       | Wisconsin, USA      | McMahon Associates Inc             |
| Greenfield 27 - 4101 Bldg                   | North Carolina, USA | Hagersmith Design                  |
| Grove @ Whitestation Change Order           | Tennessee, USA      | LRK Architects                     |
| GSU Convocation Center                      | Georgia, USA        | SLAM Collaborative                 |
| Harmony Addition                            | Texas, USA          | Gignac Associates                  |
| Hawthorne Condominiums                      | Texas, USA          | Kirksey Architecture               |
| Hillwood HS                                 | Tennessee, USA      | Hastings Architecture Associates   |
| Hotel Indigo                                | Minnesota, USA      | RSP Architects                     |
| Hudson Alpha                                | Alabama, USA        | Fuqua Partners                     |
| Humber River LTC                            | Ontario, Canada     | Montgomery Sisam Architects        |
| Hutchinson Metro Center Tower II and Atrium | New York, USA       | Newman Design                      |
| Ingham County Justics Facility              | Michigan, USA       | Kramer Management Group            |
| Itawamba Community College - Vo-Tech        | Mississippi, USA    | Pryor Morrow Architects            |
| Jackson Heart                               | Mississippi, USA    | Holloman Architecture              |
| Jasper Hosue                                | Alberta, Canada     | architects—Alliance                |
| Jonesboro High School                       | Arkansas, USA       | Cahoon Stelling                    |
| Keith Summey Library                        | South Carolina, USA | McMillan Pazdan Smith Architecture |



# NORTH AMERICAN PROJECT REFERENCES

*Alfred FR Metal Composite Material*

| PROJECT NAME  | LOCATION            | ARCHITECT                          |
|---|---------------------|------------------------------------|
| Kipling Go Bus Station                                | Ontario, Canada     | Strasman Architects                |
| Lafayette Economic Development Authority (LEDA)       | Louisiana, USA      | Domingue, Szabo & Associates, Inc. |
| Lexus Dealership                                      | New York, USA       | SLCE Architects, LLP               |
| Macon Pond Medical Office Building                    | North Carolina, USA | HagerSmith Design PA               |
| Magnolia Trace Elementary School                      | Louisiana, USA      | Greenleaf Lawson Architects        |
| Methodist Olive Branch Hospital                       | Mississippi, USA    | Gresham Smith                      |
| Moore County NC Courthouse                            | North Carolina, USA | Moseley Architects                 |
| Morrison Yard   | South Carolina, USA | ASD SKY                            |
| Mountain Tech South                                   | Utah, USA           | FFKR Architects                    |
| Nashville Airport Parking Garage                      | Tennessee, USA      | Moody Nolan                        |
| Neuhoff District                                      | Tennessee, USA      | HKS Architects                     |
| New Southside Elementary and Junior High School       | Louisiana, USA      | Alvin Fairburn & Associates        |
| One Sullivan Place                                    | New York, USA       | RKTB Architects                    |
| OnLogic Global Headquarters                           | Vermont, Canada     | Wiemann Lamphere Architects        |
| Orchard Farms   | Missouri, USA       | Hoener Associates, Inc             |
| Orem VA Clinic  | Utah, USA           | GSBS Architects                    |
| Orlando Health Jewitt Orthopedic Hospital             | Florida, USA        | EYP Architecture & Engineering     |
| Overland One B3                                       | Kansas, USA         | Burns & McDonnell                  |
| Overland Park Arboretum Visitors Center               | Kansas, USA         | Confluence                         |
| Parkwood Canopies                                     | Indiana, USA        | DKGR Architecture                  |
| Planet Fitness  | Wisconsin, USA      | RMA Architects                     |
| Red Deer Justice Centre (RDJC)                        | Alberta, Canada     | Group 2                            |
| Riverfront Landing 2                                  | Pennsylvania, USA   | JDavis Architects                  |
| RWJ Barnabas Health Athletic Performance Center (APC) | New Jersey, USA     | Perkins Eastman                    |
| Seacoast Medical Park Two                             | South Carolina, USA | Design Strategies,LLC              |
| Sequoyah  | Oklahoma, USA       | Michael McCoy Architecture         |
| Shannon Oncology Center                               | Texas, USA          | O'Connell Robertson                |
| Skyview Ranch K9 School                               | Alberta, Canada     | FWBA Architects                    |

# NORTH AMERICAN PROJECT REFERENCES

*Alfred FR Metal Composite Material*

| PROJECT NAME   | LOCATION            | ARCHITECT                                 |
|--|---------------------|---|
| Smith Residence Lot 58- 4th                              | BC, Canada          | Openspace Architecture                    |
| SNC Lavalin Office                                       | Ontario, Canada     | De Silva Architect                        |
| Southern First Bank Headquarters                         | South Carolina, USA | Craig Gauden & Davis Stubbs Muldrow Herin |
| Southern Indiana Orthopedics MOB                         | Indiana, USA        | BSA Lifestructure                         |
| St. Elizabeth's Shelter                                  | Maryland, USA       | Wiencek + Associates                      |
| Stateline Auto Ranch Subaru                              | Idaho, USA          | BRS Architects                            |
| Summit Medical Lab Building                              | Tennessee, USA      | BarberMcMurry Architects                  |
| Summit Park Church                                       | Missouri, USA       | Method Group                              |
| Syngenta Product Metabolism and Analytic Sciences (PMAS) | North Carolina, USA | Hanbury                                   |
| Tempo Amenity Building                                   | BC, Canada          | Robert Ciccozzi Architecture              |
| The Arc  | BC, Canada          | Franci Architecture                       |
| The Atreaux Apartments                                   | North Carolina, USA | Axiom Architecture                        |
| The Bridge   | Alberta, Canada     | Zeidler Architecture                      |
| The Conservatory   | BC, Canada          | Franci Architecture                       |
| The George   | Nova Scotia, Canada | Fathom Studio                             |
| The Hat @ West Village Towers                            | Alberta, Canada     | NORR Architects Engineers Planners        |
| The Lights at Sheyenne 32                                | North Dakota, USA   | ICON Architectural Group                  |
| The Oaks   | Manitoba, Canada    | ft3 Architects                            |
| The Post   | Wisconsin, USA      | Knothe & Bruce Architects                 |
| The Renaissance Center                                   | Tennessee, USA      | Anderson Buehler Architects pllc          |
| The Shore at Sierra Point (Buildings A,B,C)              | California, USA     | DES Architects + Engineers                |
| The Smyth  | Connecticut, USA    | Lessard Design                            |
| The Theodore   | Alberta, Canada     | IBI Group                                 |
| The Venue at Kee Town                                    | Iowa, USA           | OPN Architects                            |
| The Villages EEC   | -                   | Wallman Architects                        |
| The Windsor  | Alberta, Canada     | NORR Architects Engineers Planners        |
| TIMPTE, INC.   | Iowa, USA           | Aspect Architecture                       |
| Toyota of Manhattan                                      | New York, USA       | SLCE Architects, LLP                      |

## NORTH AMERICAN PROJECT REFERENCES

## Alfred FR Metal Composite Material

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# GLOBAL PROJECT REFERENCES

*Alfred FR Metal Composite Material*

| COUNTRY  | PROJECT NAME                 | ARCHITECTURAL FIRM                   | SIZE (SQFT) |
|----------|------------------------------|--------------------------------------|-------------|
| Korea    | The Hillstate                | KMD Architects & Samoo Architects    | 753,480     |
| Korea    | Doosan We've The Zenith      | De Stefano + Partners                | 317,538     |
| Korea    | Sangam Kaiser Palace         | HAEAHN Architecture                  | 269,100     |
| Korea    | Kolon-Parkpolis              | Morphosis Architects                 | 258,336     |
| Korea    | Seongnam City Hall           | KMD Architects & Samoo Architects    | 129,168     |
| Korea    | OCI Central R&D center       | HAEAHN Architecture + H Architecture | 129,168     |
| Korea    | Dangin Power Plant of TAIHAN | Obra Architects                      | 118,404     |
| Korea    | Lions Valley                 | Mass Studies                         | 107,640     |
| Korea    | National Police Agency       | H Architecture                       | 96,876      |
| Korea    | KEPCO Research Institute     | KEPCO Research Institute             | 75,348      |
| Korea    | Korea Land & Housing Corp    | DRDS, Moo Young & Tomoon             | 16,146      |
| Thailand | Honda Big Wing               | VaSLab Architecture                  | 53,820      |
| Vietnam  | Landmark 81 Tower            | Atkins                               | 484,380     |





|                |  |
|----------------|--|
| Project Name   | West Village Towers - The Hat @ West Village       |
| Location       | Alberta, Canada                                    |
| Architect      | NORR Architecture & Planning                       |
| Owner          | Cidex Group of Companies & Wexford Developments LP |
| Fabricator     | Custom Metal Contracting Ltd.                      |
| Alfred Product | Alfred FR 4mm Metal Composite Material             |
| Product Finish | Rough 1 (Custom)                                   |
|                | Rough 2 (Custom)                                   |
|                | Concrete White (JY-5140)                           |
|                | Silver (AL-1220)                                   |

The West Village Towers project in downtown Calgary is a rising complex of three interconnected high-rise towers designed to reflect the natural beauty of the nearby Rocky Mountains and Bow River. Also known as “The Hat @ West Village”, when completed, it will be the tallest multi-residential mixed-use project in downtown Calgary – occupying an entire city block and commanding spectacular views of the surroundings.

Each tower features a slanted translucent roofline and multi-colored spandrel panels to exude a combination of shining reflectivity and warm earth tones. The wall cladding design challenge centered around choosing materials that would blend well with the specified clear and blue glazing, project a look and feel reminiscent of the surrounding landscape, and not require highly specialized installation systems.



Custom Metal Contracting Ltd. of Calgary, Alberta Canada and Alfred, Inc. of Buford, Georgia USA partnered to develop a comprehensive solution that would achieve the design intent while providing economic benefits versus other alternatives. A key component of the solution was the development of three rough textured finishes to mimic the look and feel of concrete. After color and texture approval, a specially formulated protective film was employed to adhere to the textured finish surface and provide for maximum protection during the fabrication and installation phases of the project. Utilizing Custom Metal Contracting’s Composite Panels System Series 20 rainscreen system, at project completion approximately 130,350 square feet of Alfred FR 4mm MCM in four colors will clad the exterior of the three towers and integrate beautifully as a new addition to the Calgary skyline.

Alfred, Inc. is the newest North American domestic MCM manufacturer and is pleased to be a member of the Metal Construction Association and MCM Alliance. Alfred specializes in fire-resistant and non-combustible architectural metal wall cladding with a portfolio including Alfred FR Metal Composite Material, matching 0.040” flat sheet, and coil coated aluminum Alfred Plate in 0.080” and 3mm thick panels up to 62” wide. Its parent company, Unience, Co Ltd., began operation in 2000 as a manufacturer of specialty fire-resistant coatings, bonding materials, and pelletized mineral filled FR core compound for globally recognized MCM manufacturers. In 2008, Unience launched Alfred in South Korea with a multi-line MCM production facility dedicated to the exclusive production of FR core MCM utilizing in-house, fire-resistant core technology. Today, both Unience and Alfred are headquartered in Buford, Georgia USA, with a new state of the art FR core MCM production plant complimented by a commercial branch in Toronto, Ontario Canada.

# ALFRED FR MCM INSTALLATION DETAILS

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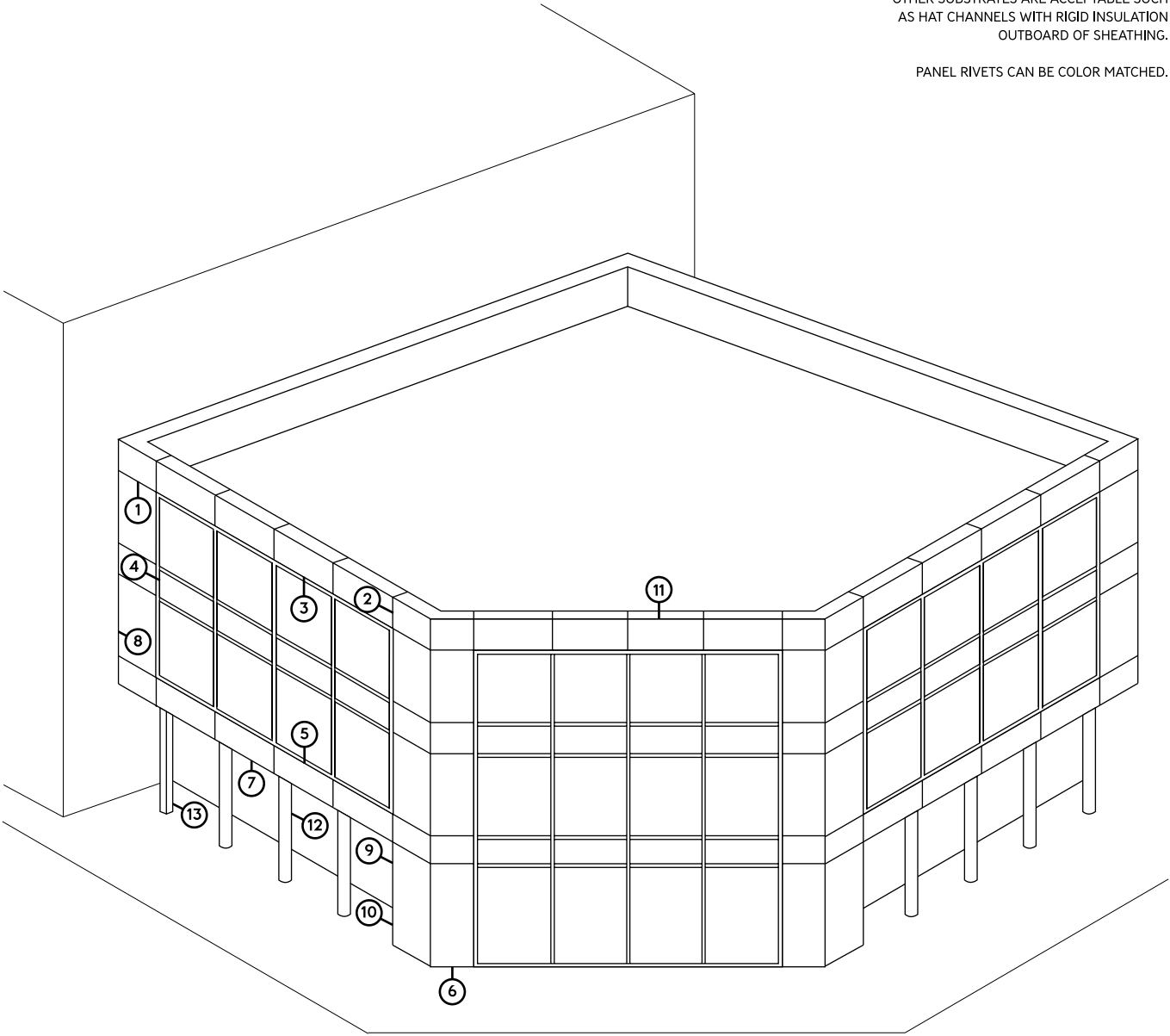


THE ARCHITECTURAL DETAILS CONTAINED ARE PROVIDED FOR CONCEPTUAL PURPOSES ONLY. ALFLEX ONLY MANUFACTURES MCM PANELS. PANEL SYSTEMS AND ASSEMBLY DESIGN, FABRICATION, AND INSTALLATION ARE PROVIDED BY QUALIFIED FABRICATORS AND INSTALLERS. ALFLEX, LLC DOES NOT MAKE ANY WARRANTIES, EXPRESS OR IMPLIED INCLUDING MERCHANTABILITY AND FITNESS FOR PURPOSE. PLEASE CONSULT ALFLEX, LLC FOR RECOMMENDATIONS OF TESTED SYSTEMS AVAILABLE IN THE MARKET.

ARCH / FABRICATOR NOTES:  
MAX PANEL SIZE IS 60" IN EITHER DIRECTION.  
MICA / METALLIC FINISHES ARE DIRECTIONAL FINISHES AND MUST BE INSTALLED IN THE SAME DIRECTION FOR CONSISTENT COLOR.

DETAILS SHOWN ARE IN A RAINSCREEN APPLICATION ON EXTERIOR GWB SHEATHING WITH COMMERCIAL TYVEK (OR SIMILAR). OTHER SUBSTRATES ARE ACCEPTABLE SUCH AS HAT CHANNELS WITH RIGID INSULATION OUTBOARD OF SHEATHING.

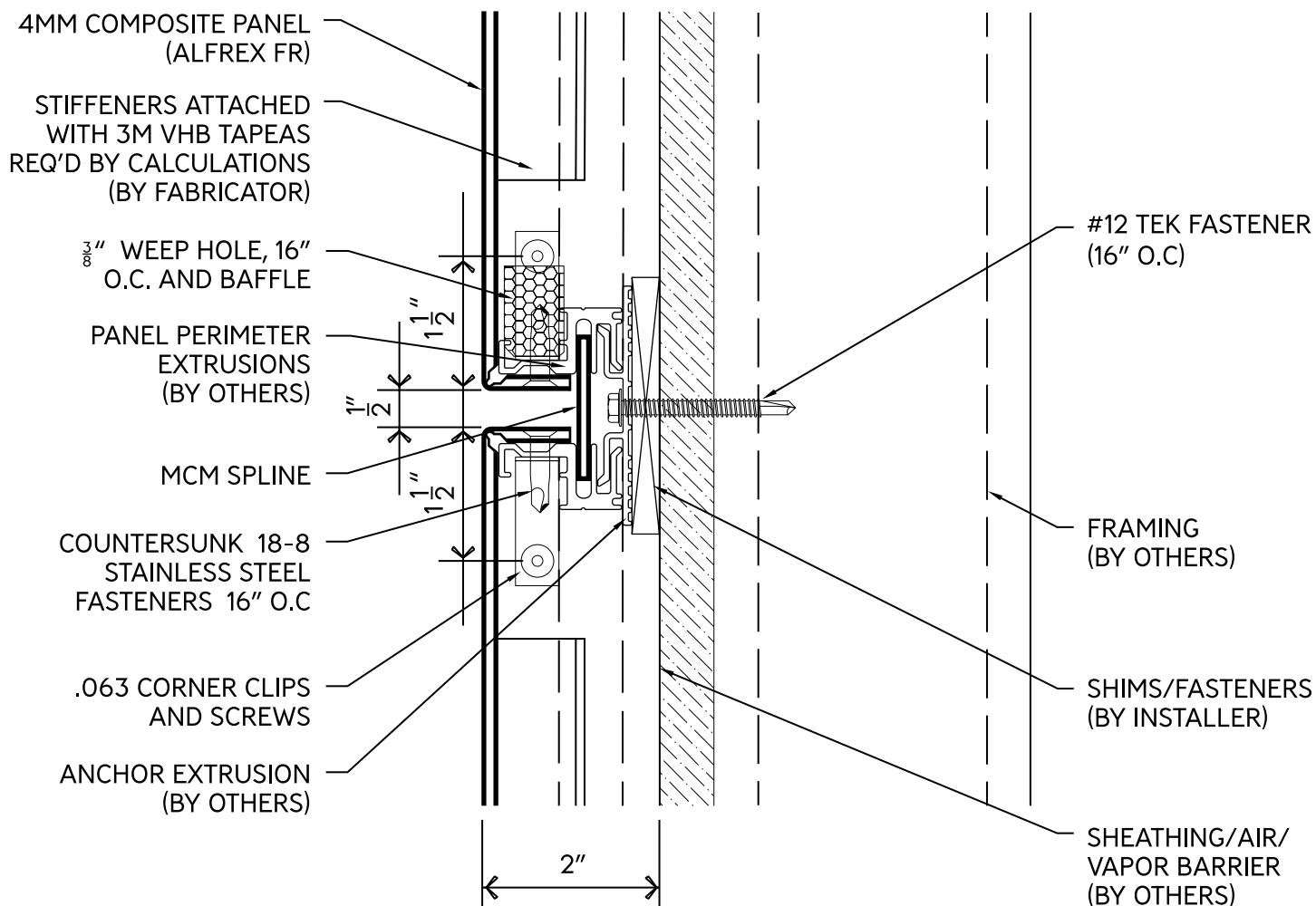
PANEL RIVETS CAN BE COLOR MATCHED.



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# GENERIC RAINSCREEN SYSTEM APPLICATION

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HORIZONTAL JOINT

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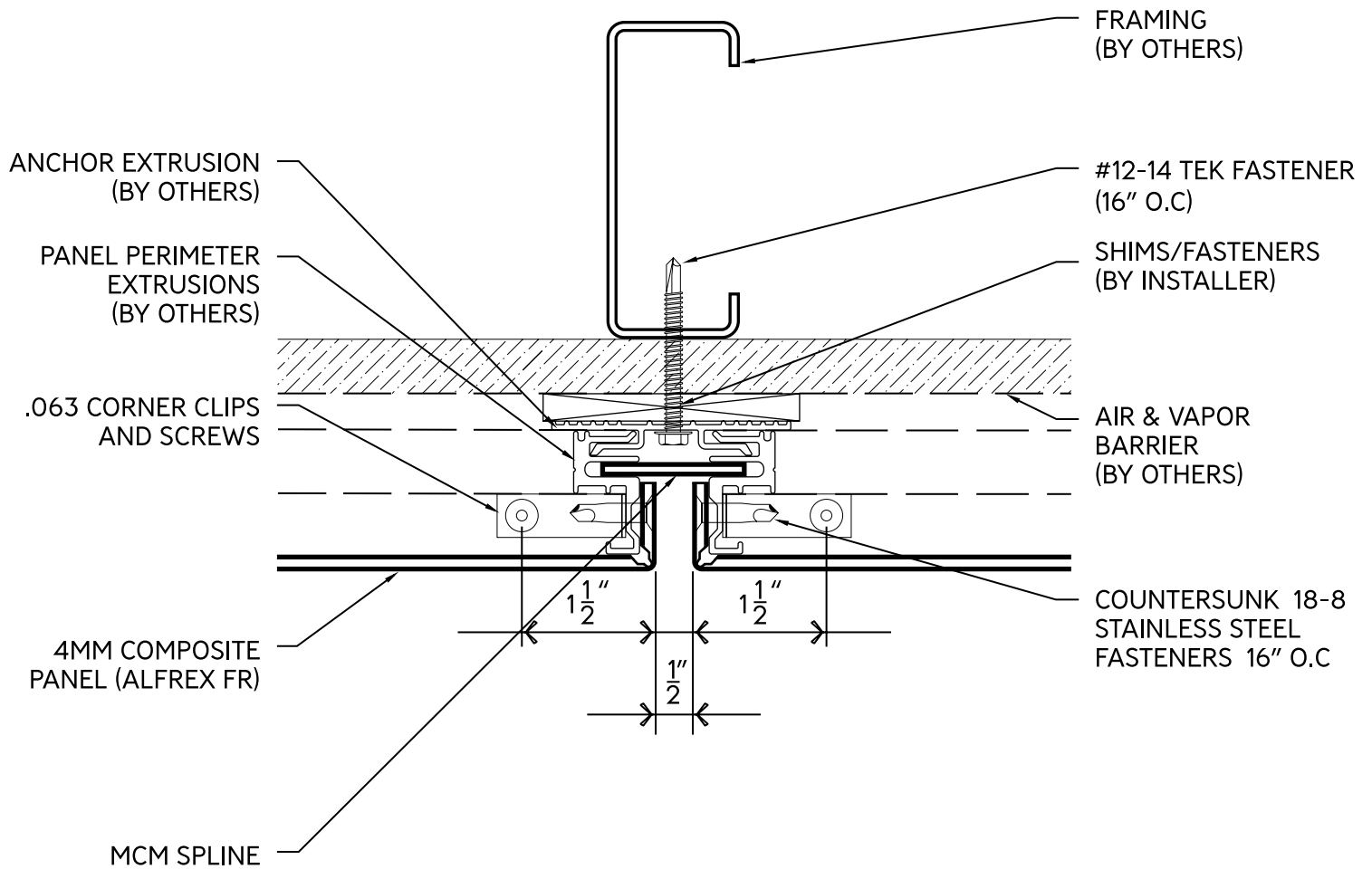
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## GENERIC RAINSCREEN SYSTEM APPLICATION

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VERTICAL JOINT

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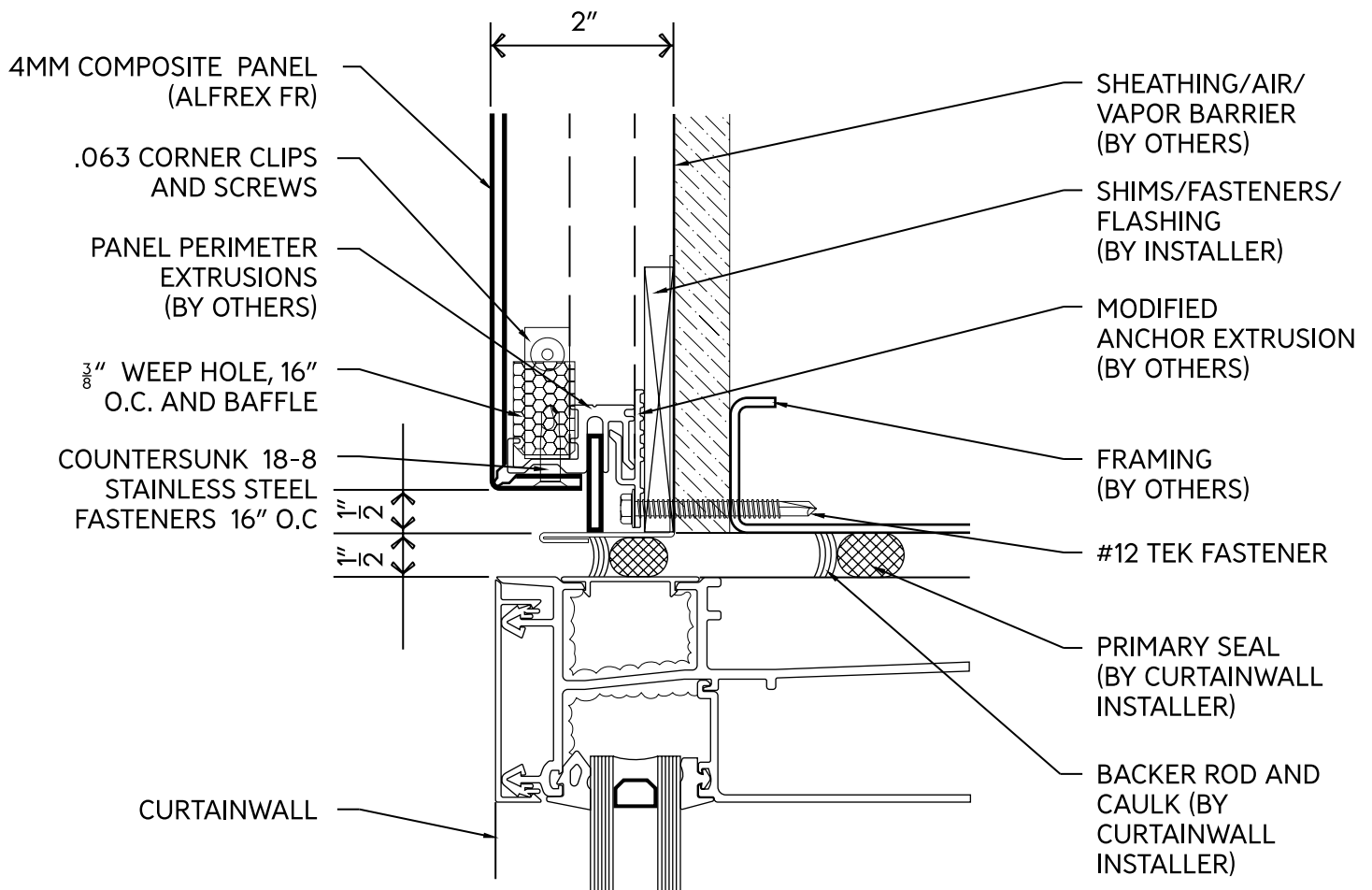
## GENERIC RAINSCREEN SYSTEM APPLICATION

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HEAD

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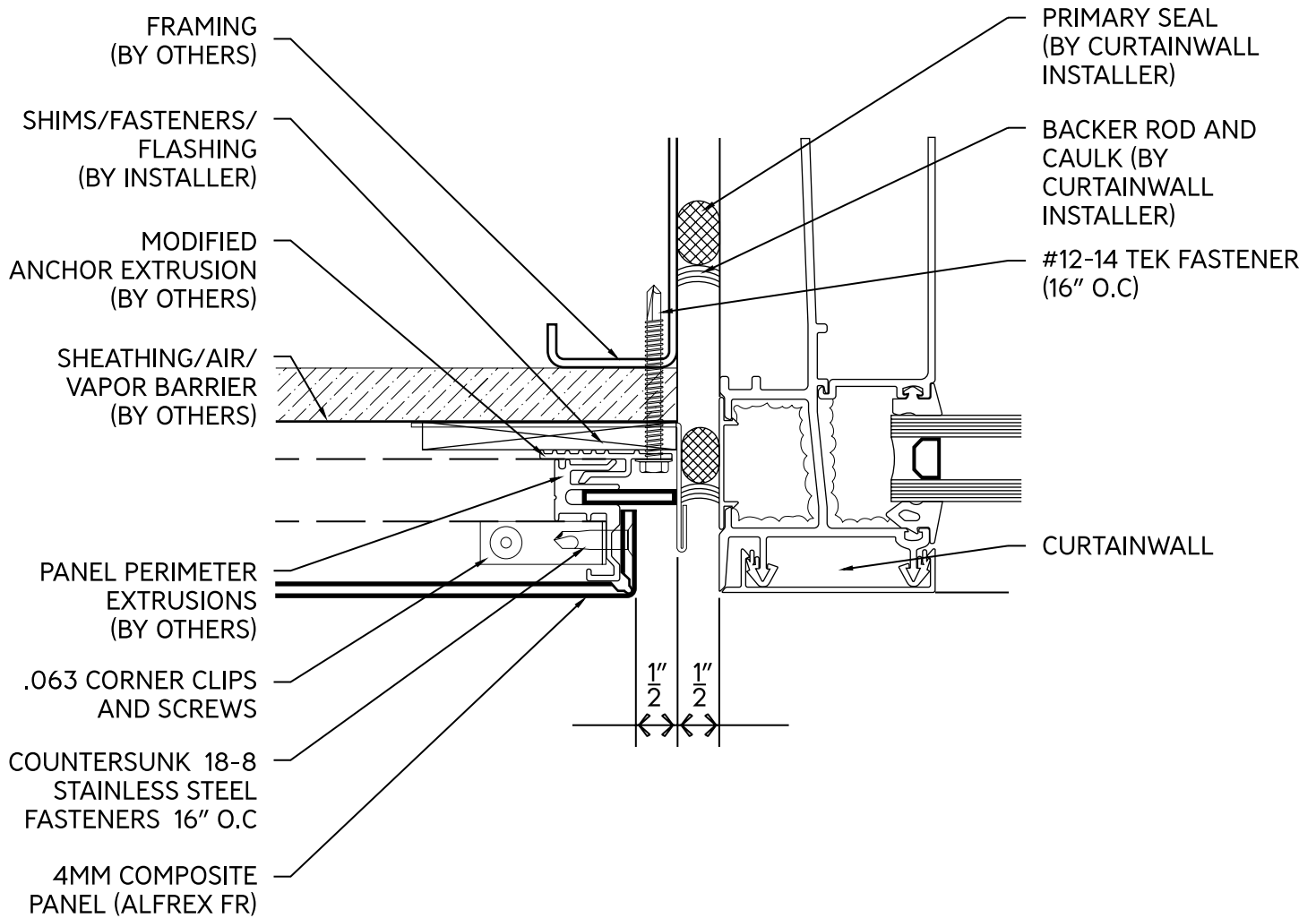
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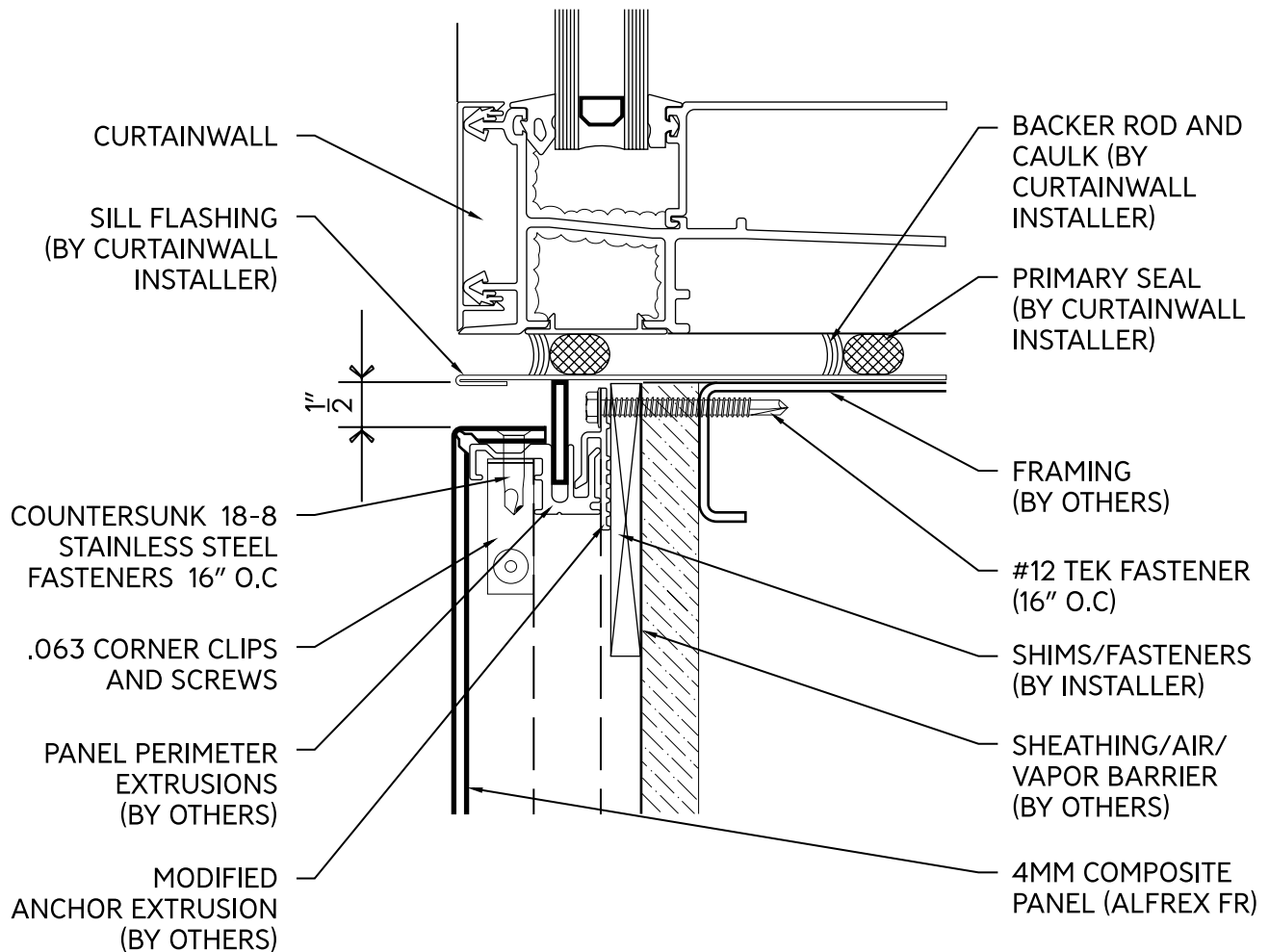
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SILL

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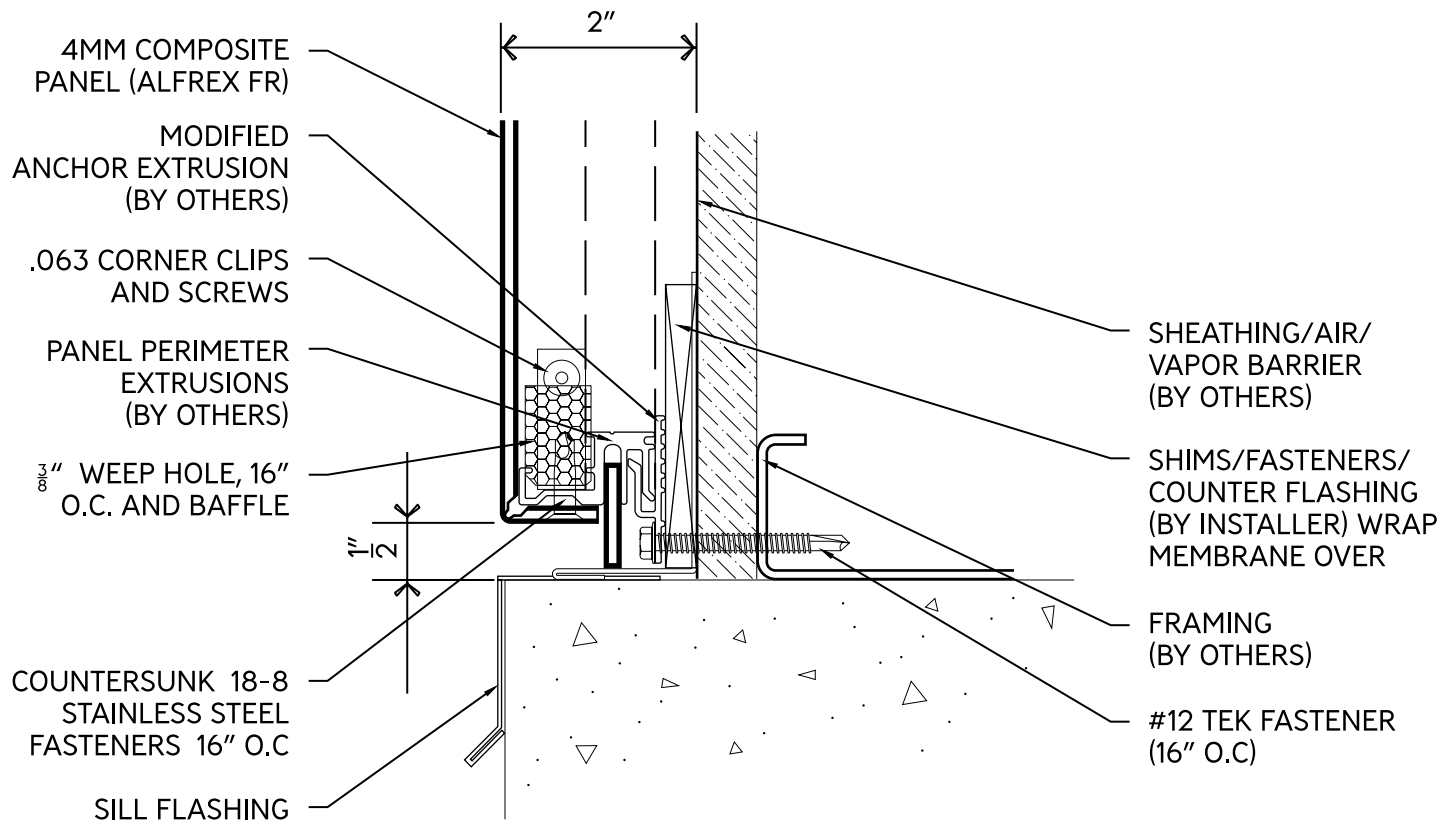
## GENERIC RAINSCREEN SYSTEM APPLICATION

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BASE CONDITION

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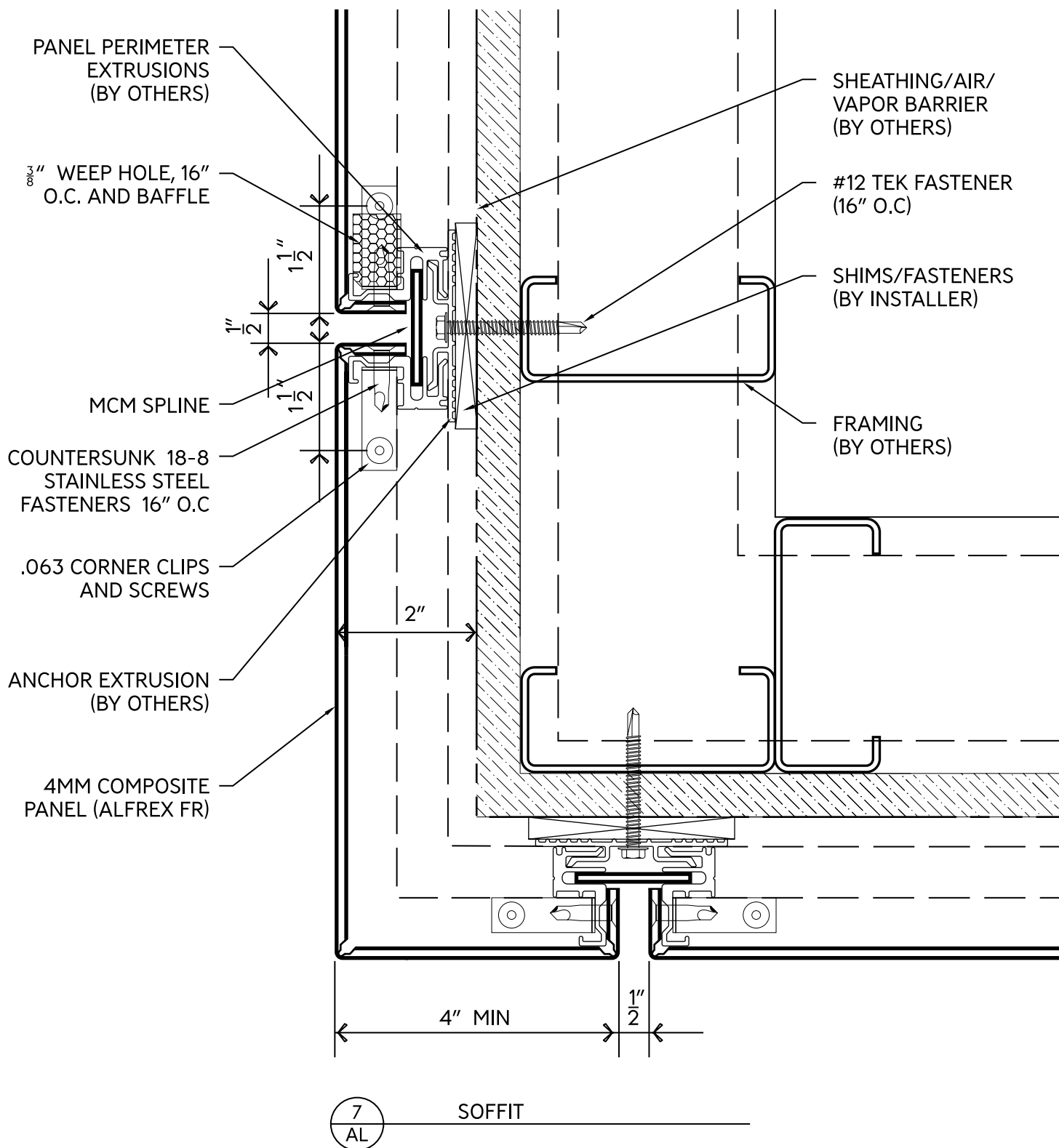
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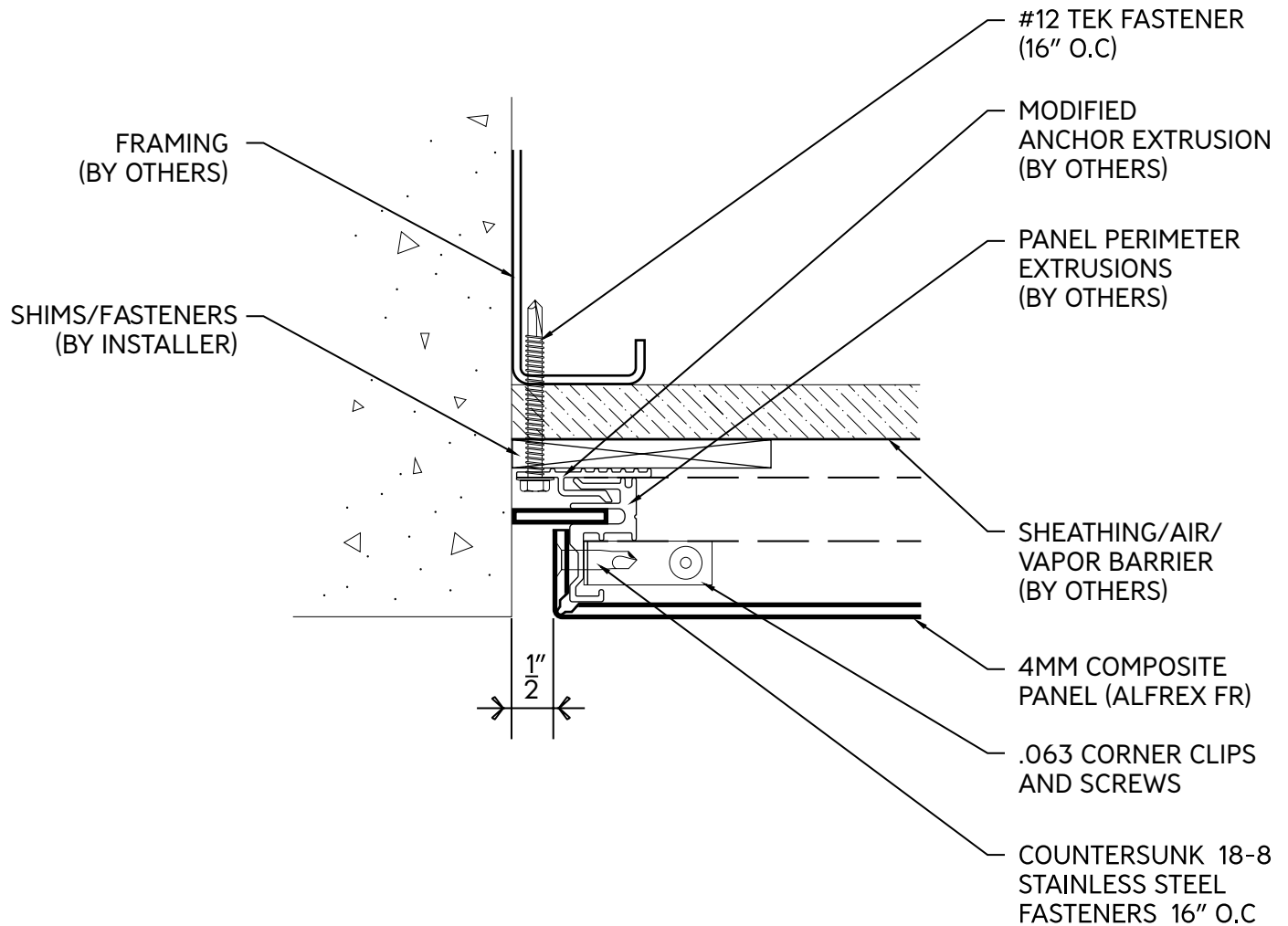
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TERMINATION

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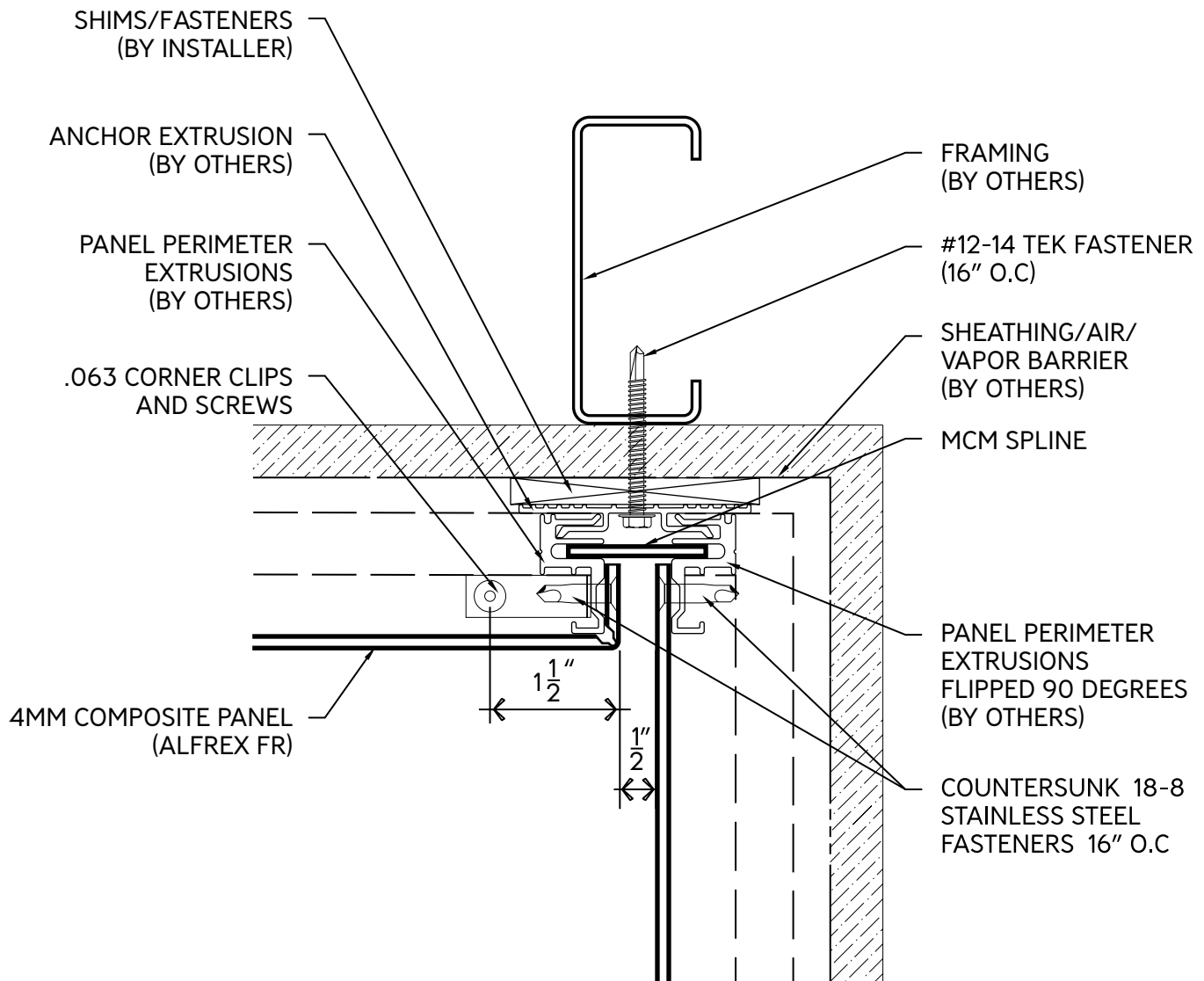
## GENERIC RAINSCREEN SYSTEM APPLICATION

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INSIDE CORNER

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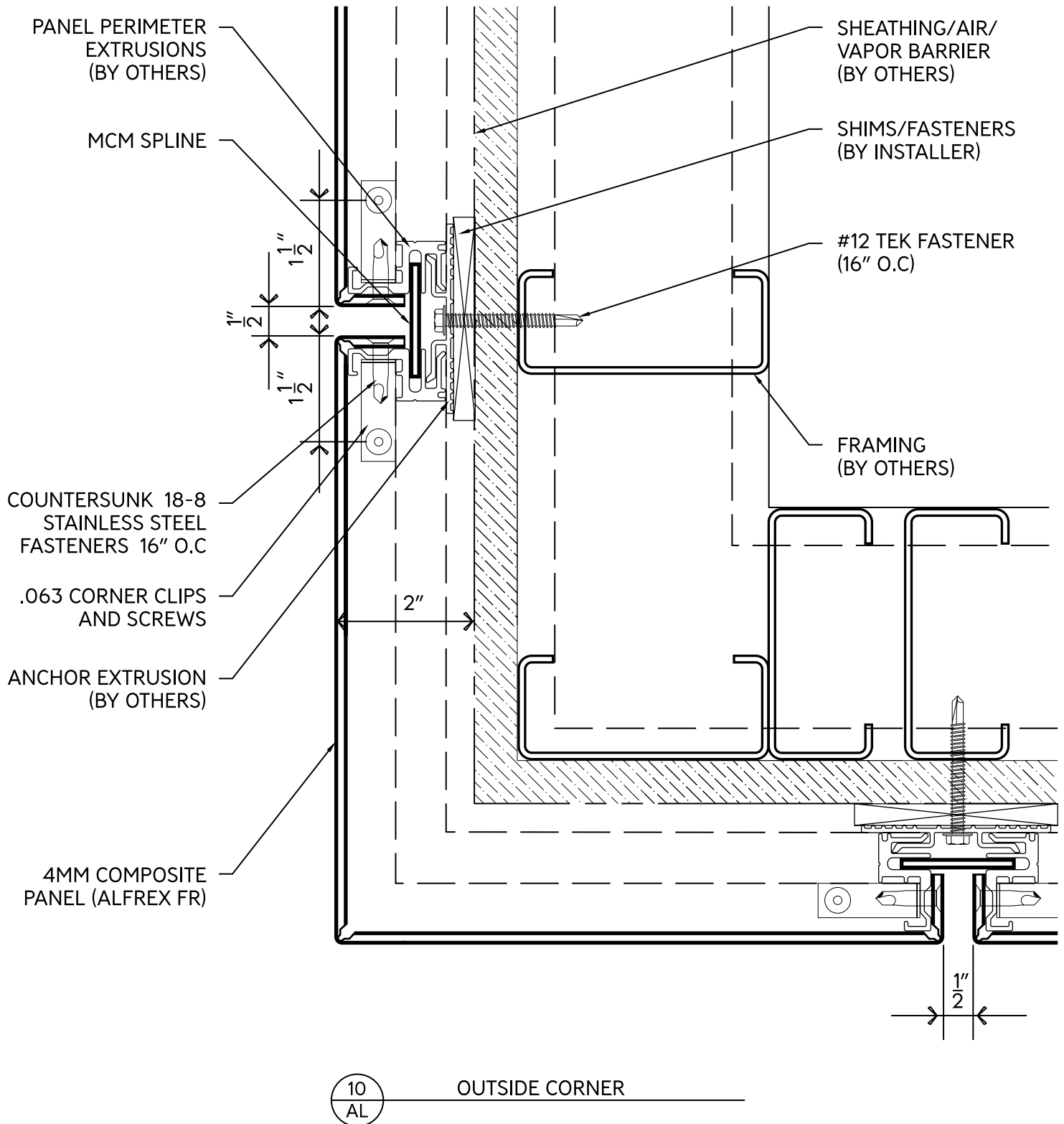
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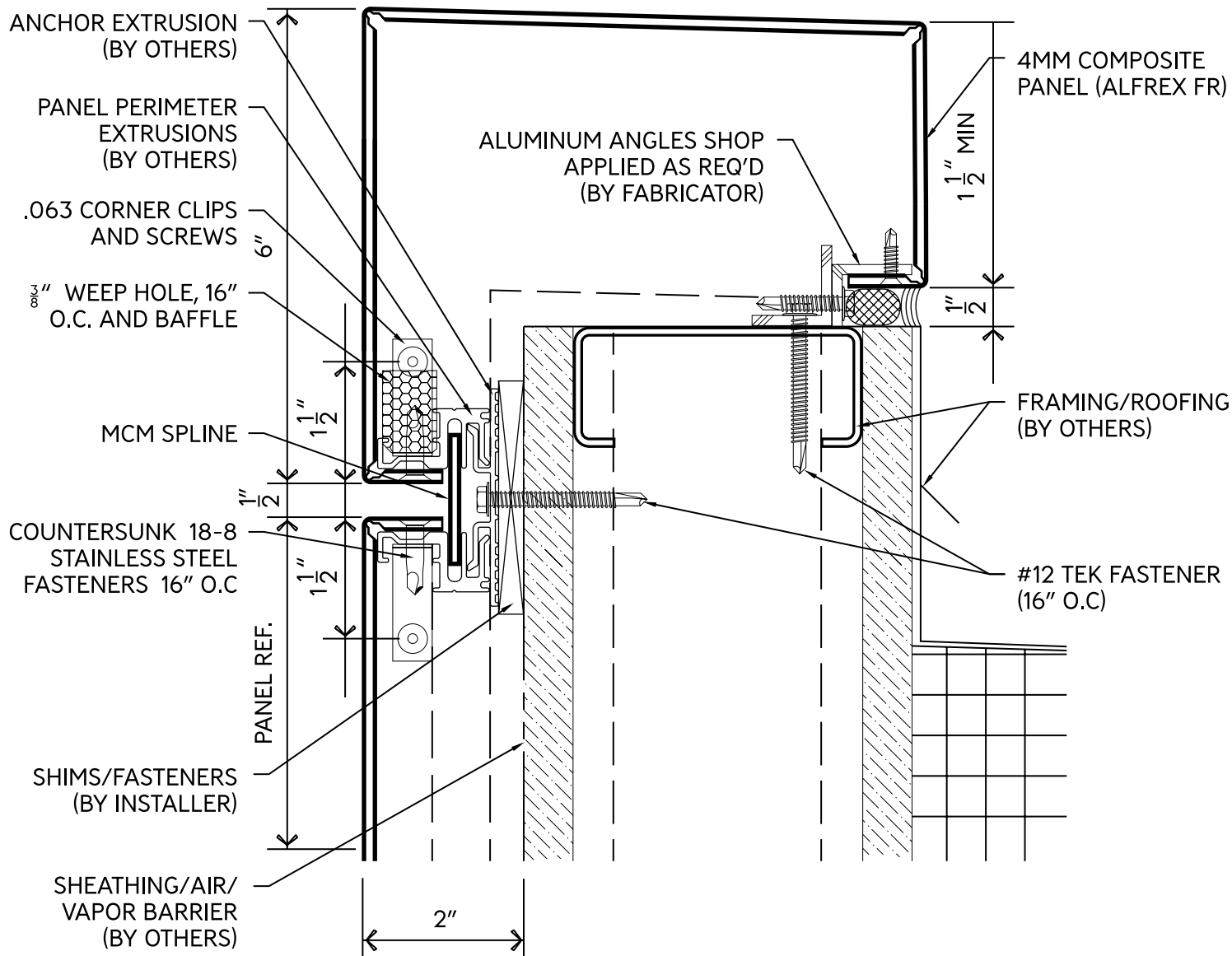
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AL

PARAPET OPTION 2

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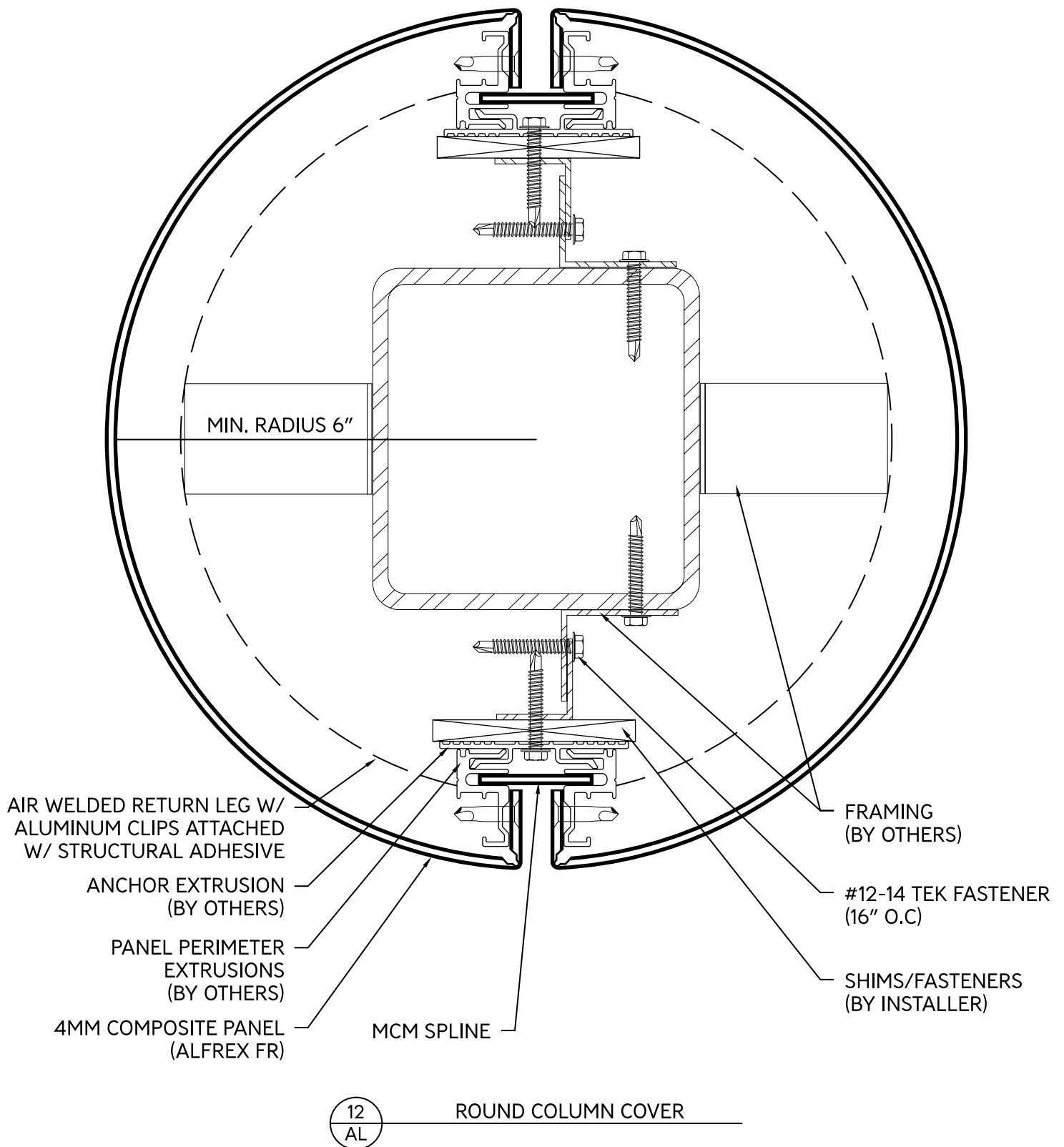
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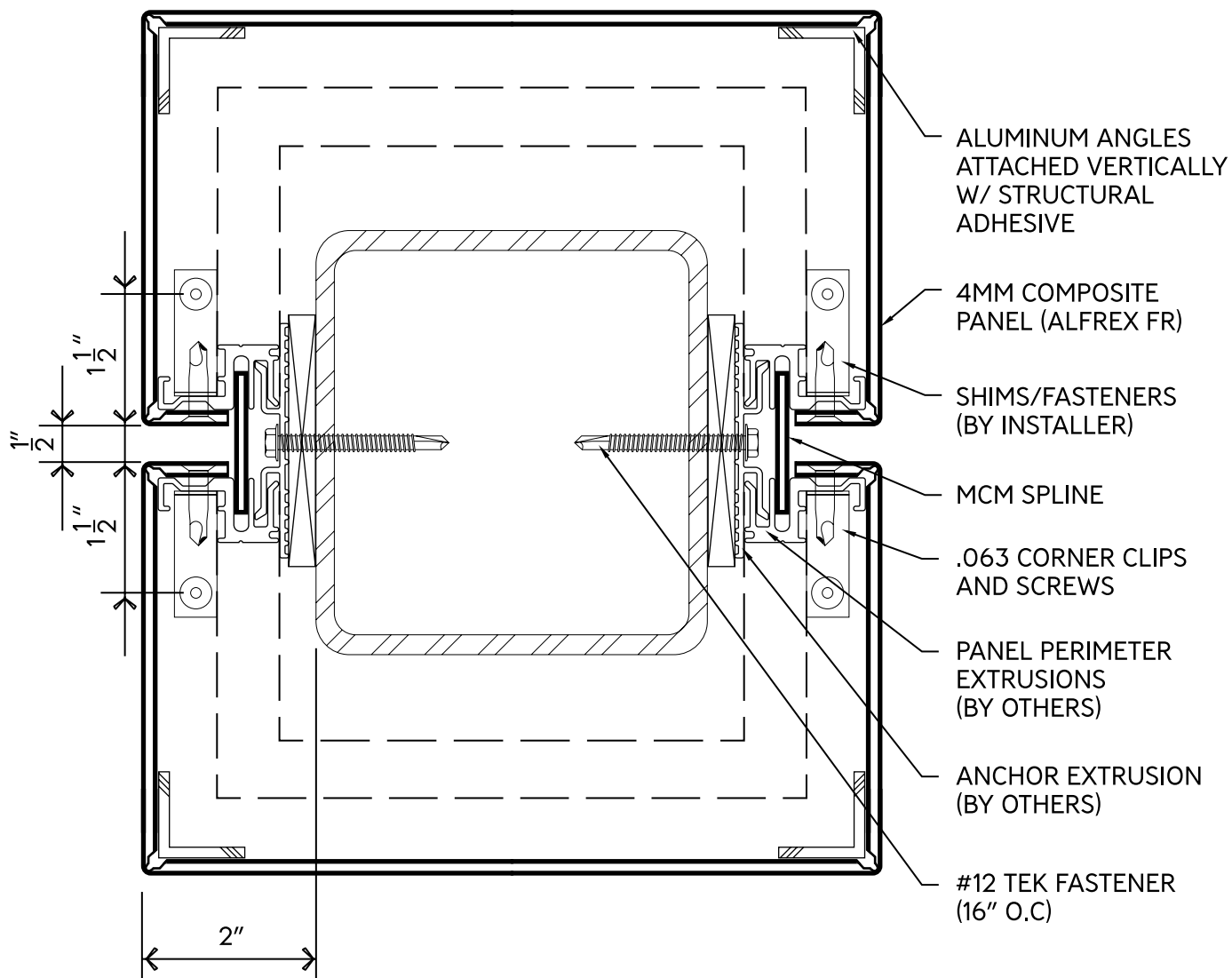
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## GENERIC RAINSCREEN SYSTEM APPLICATION

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AL

SQUARE COLUMN COVER

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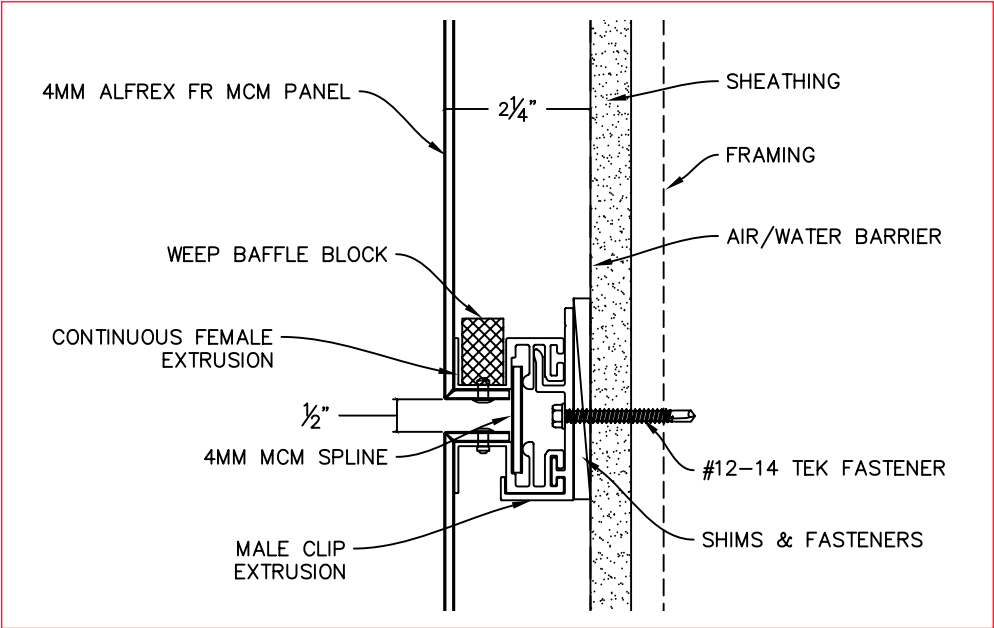
**GENERIC RAINSCREEN  
SYSTEM APPLICATION**

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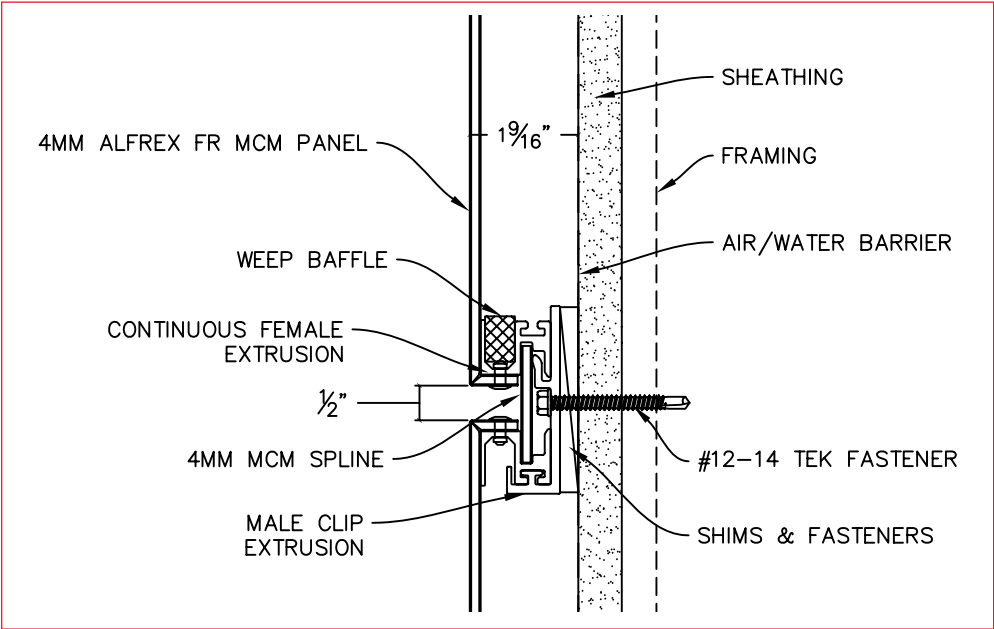
May 2021

ACCU-TRAC® DS  
 Pressure Equalized Rainscreen System



FULL DETAILS

ACCU-TRAC® LOW PROFILE DS  
 Back Ventilated Rainscreen System

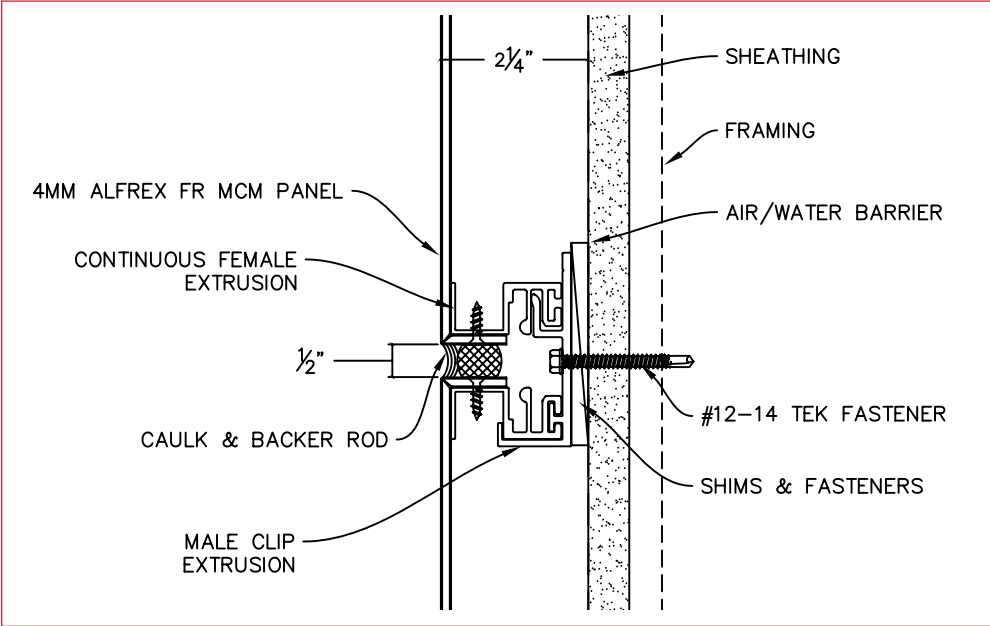


FULL DETAILS

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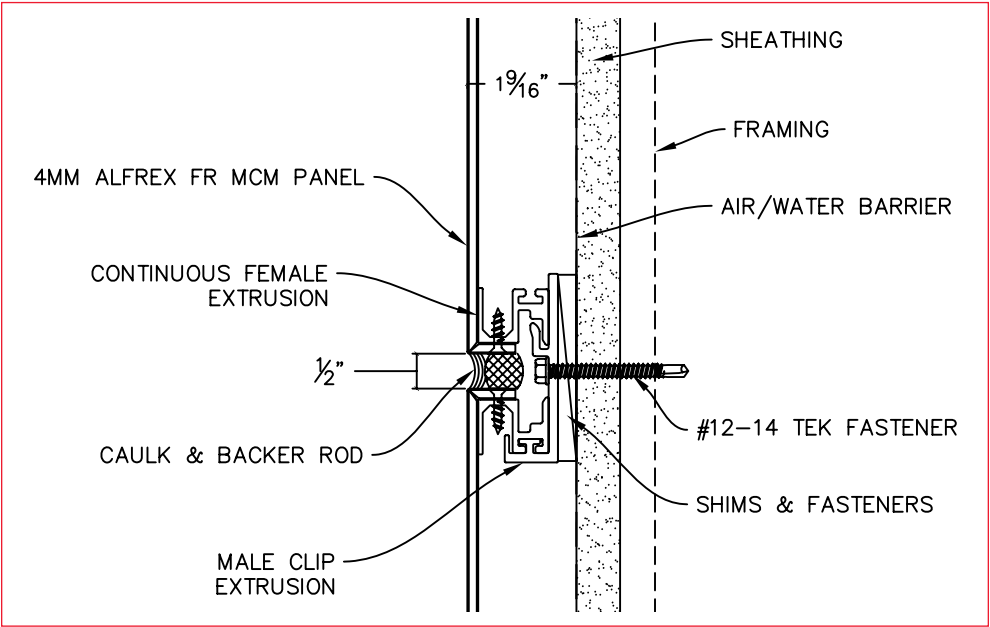


**ACCU-TRAC® ES**  
 Route & Return Exposed Sealant System



FULL DETAILS

**ACCU-TRAC® LOW PROFILE ES**  
 Low Profile Route & Return Exposed Sealant System



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# ALFREX FR MCM SUPPORT DOCUMENTATION

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Alfred, Inc. (Alfred) Alfred FR aluminum composite and Alfred Plate panels are manufactured utilizing aluminum coils painted on continuous process coil coating lines. The high-quality architectural coatings used contain combinations of UV resistant resins, organic pigments, inorganic pigments, and protective clear coats engineered for long term exterior exposure in the elements and minimal maintenance.

Alfred recommends that panels be cleaned on a regular basis in order to maintain their aesthetic appearance and to prevent the accumulation of dirt and particulate present in the local environment. The frequency and degree of cleaning is dependent upon several factors including the building location, proximity to bodies of fresh water or the ocean, local climate, pollution levels, proximity to heavy industry, and overall air quality. A general practice is to clean panels at the same time a building's windows are cleaned.

## General Recommendations

- Always avoid the use of abrasive materials that pose a potential to scratch or degrade the painted surface of panels including, but not limited to, steel wool, wire brushes, metal scrapers, abrasive sponges, powder abrasives, and chemical abrasives.
- Commence cleaning at the bottom of building walls and progress upwards, working in the opposite direction of window cleaning, which traditionally progresses from top to bottom.
- To avoid streaking, cleaning should be done either on a cloudy day, or when areas of the building to be cleaned are shaded from direct sunlight.
- Regardless of the cleaning method used, the methods and materials should be first tested on either a product sample, or on a small, inconspicuous section of the building.
- Always start with a freshwater rinse and progress to the other cleaning methods from mildest to strongest as needed.
- It is recommended that more frequent cleaning intervals utilizing freshwater and mild detergents be employed as opposed to less frequent intervals which may require the use of harsher chemicals, solvents, and mild abrasive methods.
- NEVER use Acetone or Paint Removers on any painted product surface.
- Utilize personal protection equipment and proper safety precautions when handling solvents and other chemical agents to prevent chemical irritation or burns to the eyes, skin, or lungs.
- Follow closely cleaning product or chemical manufacturer recommendations regarding the mixing of certain chemicals in order to avoid the production of toxic gases or explosive chemical reactions.
- Only apply cleaning solutions, chemicals, or solvent solutions in conditions where panels can be rinsed with freshwater before the cleaning solution can dry. NEVER allow cleaning solutions to dry on the panels.

## Freshwater Rinse

- Frequent freshwater rinsing of panel surfaces is ideal for the removal of water-soluble dirt, residues, and other organic material deposits. Mechanical pressure washers should not be used as this may damage panels, coated surfaces, or components critical for the function of the panel assembly.
- Annual freshwater rinses may be mandatory as stipulated in finish warranties under certain environmental conditions, such as proximity to salt-water and ocean mist. Please consult warranties for specific details.
- If surface contaminants or stains persist after freshwater rinsing, then the utilization of mild detergents is recommended.

## Mild Detergent Cleaning

- For more persistent areas requiring deeper cleaning, Alfred recommends that a 5% mild detergent solution diluted with freshwater be used and applied directly to the area using non-abrasive cloth, sponges, or soft bristle brushes.
- Mild detergents may be classified as those used in residential applications, commonly under popular brand names, which do not pose risks of irritation when coming in direct contact with exposed skin.

## Intense Cleaning

- More intense cleaning methods may be required when mild detergent solutions are not successful in the removal of stubborn stains, or areas where non water-soluble contaminants such as paint, oils, tar, dirt, graffiti, silicone, or other sealing compounds are present.
- Alfred recommends that a solution of Mirachem® 500 diluted to a 10% to 30% concentration be used before other common solvents or chemicals. Follow the manufacturer guidelines as well as the same processes detailed above in the general recommendations, always followed by a freshwater rinse.
- Solvents that may be used include alcohol solvents (ethanol, isopropyl alcohol, methanol), petroleum solvents (Turpentine, mineral spirits), aromatic solvents (xylene, toluene), ketones (MEK, MIBK), and esters (ethyl acetate, lacquer thinner). NEVER use acetones or paint removers.



# STORAGE AND HANDLING RECOMMENDATIONS



*Alfrex FR MCM - Alfrex Plate - Alfrex 0.040" Matching Flat Sheet*

Fire Resistant & Non-Combustible Cladding

- Alfrex FR MCM, Alfrex Plate, and Alfrex 0.040" Matching Flat Sheet are cut to length and packaged in cushioned, reinforced pallets (skids) to prevent excessive sagging of the skid when lifting and moving via fork trucks.
- Pallets of Alfrex product should always be stored horizontally on flat surfaces that prevent sagging or shifting. Do not stack skids of MCM or Plate product higher than six skids high. Care should be taken not to stack multiple skids of heavier material on top of pallets containing only 0.040" flat sheet.
- Storage should be in a cool, dry area with stable temperatures to prevent formation of condensation. Sheets should not be stored where they can be exposed to moisture which may cause permanent surface damage. Situations where sheets may be subjected to standing water conditions should be avoided.
- Care should be taken when handling individual sheets during sheet fabrication. When lifted from each end, individual sheets will sag in the center as they are moved. Sagging should be minimized by having additional support in the center. Care must be taken to lift sheets high enough so that the sagging center sheet edge does not damage the surface of the sheet directly underneath as it is moved.
- Sheets of Alfrex product may be temporarily staged in "A-frame" racks commonly used with MCM and Plate sheets. It is not recommended that Alfrex product be transferred to other pallets not-supplied by Alfrex as they may sag excessively - inducing permanent set in the solid aluminum plate sheets which will manifest in sheet bowing when placed on CNC tables.

Alfred FR MCM is a coil coated metal wall cladding panel top side coated with a 70% pvdf / kynar resin finish. For situations requiring smaller quantities of a custom color, post-painting may be the only economically viable option. Post-painting should only be done by experience applicators with experience in proper preparation of architectural wall panels and application of coating systems for exterior applications

## General Recommendations

- It is important to confirm with Alfred in advance if panels are to be post-painted and properly identify the type of coatings present. The backside of Alfred FR is typically coated with an epoxy finish suitable for post-painting. However, some finished goods may have a kynar resin finish present on each side out of design, or they may have been manufactured using remnant coils of various colors - a common practice.
- Before painting, it is highly recommended that spot testing be done on small sample panel, or in a small inconspicuous area to confirm if the preparation procedures and paint application achieve the desired color and adhesion levels required for long term exterior exposure.
- Surfaces must be properly prepared before post-painting and should be degreased, clean, dry, and free of dust, dirt, oils, or any other surface contaminants.
- Surfaces must be lightly abraded utilizing fine grade sandpaper or similar products. Special care must be taken to abrade the surface uniformly across the entire panel substrate without significantly decreasing its dry film thickness. Sanding should never expose aluminum.
- After abrasion, the panel surface should be thoroughly wiped clean to remove dust and other surface contaminants. Utilize soft cloth and epoxy resin compatible, solven based cleaners.
- Though the abraded epoxy primer can serve as a post-paint primer, it is recommended that the panel surface be primer coated again. For sanded kynar resin finishes, compatible primers must be used to ensure proper prime coat finish adhesion. This is especially important for exterior applications where longer term UV performance, film integrity, and coating warranties extended by the post-painter are required.
- Both air-dry and baked on finishes should be spray applied by a professional finish applicator.
- It is recommended that the finish applicator be informed in advance of material, process, and compatibility concerns.
- Alfred FR MCM may be coated with air-dry finishes. Heat may be used to assist in the curing process but should not exceed temperatures of 140 °F (60 °C).

Exclusions

- 1. For any post-painted Alfred MCM product, all finish warranties for the top side coating are null and void. All other warranties, representations or guarantees, express or implied, written or oral, by operation of law or otherwise, including without limitation, the implied warranties of merchantability and fitness for a particular purpose are excluded.
- 2. Alfred does not offer finish warranties for post-painted finishes. All warranties must be provided by the finish applicator directly to the warantee.
- 3. All sales of Alfred products are subject to its General Terms and Conditions which may be found at [www.alfrexusa.com](http://www.alfrexusa.com) in the downloads section.

| EPOXY COATING PROPERTIES |                               |
|--------------------------|-------------------------------|
| PROPERTY                 | RESULT                        |
| Color                    | Light Gray                    |
| Particle Size            | Max 25µm                      |
| Gloss at 60 °            | 30 ± 5                        |
| Viscosity (sec)          | 100 ± 20 (F.C#4/25°C)         |
| Density                  | 1.3 ± 0.05                    |
| NVM (%)                  | 62 ± 3                        |
| MEK Rubbing              | Min 50                        |
| Flexibility              | 2T                            |
| Pencil Hardness          | 2H                            |
| Acid Resistance          | No Blisters                   |
| Alkali Resistance        | No Blisters                   |
| Boiling Water Resistance | No Blisters                   |
| S.S.T 200hrs             | Plain Surface : No Blisters   |
|                          | Cross Hatch Surface : Max 2mm |



For minor applications of touch up paint to coil coated Alfred metal wall cladding products, it is recommended that one use a high-quality, air-dry pvdf / kynar resin product. Crosslink Paints in Dallas, Texas is a quality manufacturer of touch up paint well known in the metal wall panel and roofing industry. Their touch up paint products, color matching capabilities, and contact information may be found below. Crosslink Paints should be contacted directly for purchase of their products.

## TOUCH UP PAINT PRODUCTS

- Touch Up Pens
- Liquid Bottle & Brush
- Aerosol Spray Can
- Paint Cans

## COLOR MATCH CAPABILITIES

- RAL Standard Colors
- PPG Duranar (kynar, PvDF)
- PPG Corafon (FEVE)
- Sherwin Williams Fluoropon®
- Akzo Nobel
- Custom Matches

## Company Contact Information

### Crosslink Paints

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# alfrex

Fire Resistant & Non-Combustible Cladding



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